DEPARTMENT OF ENVIRONMENT AND CONSERVATION
TENNESSEE DIVISION OF AIR POLLUTION CONTROL
ANNUAL INSPECTION

Facility No.: 63-0092

On-Site: __X__YES _____NO
Announced: __X__ Unannounced: ____

State Category: Title V

Date Inspected: 10/18/18

Company Name: Nyrstar Clarksville, Inc.
Location address: 1800 Zinc Plant Road
City/State/Zip: Clarksville, TN 37041

All Inspection Participants:
Mr. Kevin Cook, Nyrstar SHEQ Manager
Mr. Tyler Burrell, Nyrstar Environmental Specialist
Mr. John Helton, TDEC APC

Date of the last annual inspection: 11/29/17
Time period covered by this inspection, from: 11/29/17 to 10/18/18
Is inspection partial or comprehensive? Comprehensive

Was facility issued any Notice of Violation (NOV) since the last inspection? ☒YES ☐NO
If YES, enter data below.

Violation(s) Description	NOV Date	Issued By (Environmental Field Office, Compliance Validation, Permitting)	Has the violation been addressed by NFA or Order issuance? (yes/no)
Source 03: Quarterly report indicated that excess SO2 emissions occurred	05/22/18	Compliance Validation	Yes
Source 03: Zinc Ore Roaster Dome leaks	06/20/18	Environmental Field Office	Yes
Source 12: SAR indicated exceedances of the hours of operation limit for the Auxiliary Rental Boiler and Roaster Preheater	09/07/18	Environmental Field Office	Yes
Source 03: Zinc Ore Roaster Dome leaks continue Source 12: Exceedances of the hours of operation limit for the Auxiliary Rental	11/14/18	Environmental Field Office	No

Boiler and Roaster Preheater continue			

Field Services inspection compliance status for entire time period covered: ☐IN ☒OUT

(The status will be "Out" if the facility was issued a NOV by Field Services personnel anytime during the inspection timeframe. The inspector will explain the "Out" status in the comments section.)

Comments:
The facility was issued a NOV on June 20, 2018, for off-gas leaks coming from the zinc ore roaster. The inspector made an unannounced site visit on June 12, 2018, in response to a complaint forwarded from the U.S. EPA alleging that the zinc ore roaster was leaking. The roaster dome was examined and determined to be leaking. A Director's meeting was held on June 14, 2018, and the Division decided to issue Nyrstar a NOV for non-compliance with Condition E5-1, which requires off-gases from the roaster to be ducted to a control device. The facility submitted an APC 31 on July 20, 2018. Nyrstar outlined plans for repairing the roaster dome in September 2018 and submitted a progress report on October 12, 2018. According to this report, Nyrstar spent over $500,000 repairing an area of the roaster approximately 25 ft x 35 ft. However, when the repairs were completed and the roaster began operating again, Nyrstar discovered that the roaster is still leaking off-gases. The inspector observed off-gases still leaking from the roaster dome at the time of this inspection. Nyrstar's solution is to build and install a new stainless steel dome cap that will be fitted over the existing roaster dome. The cost of the dome is estimated at $350,000. Nyrstar originally planned to have the new cap installed by late October or early November 2018. However, Kevin Cook stated during a subsequent telephone conversation with Division personnel on November 5, 2018, that Nyrstar had suffered a set-back in its plans for constructing the cap because of limited availability of the type of stainless steel chosen and, therefore, construction and installation of the new cap will be delayed. The Division will make a subsequent site visit after the cap has been installed to verify that the leaks have been rectified. Nyrstar will remain out of compliance until such time that the roaster leaks have been successfully repaired. This violation, along with previous violations for excess SO2 emissions, was originally addressed by Order Number APC18-0099, which was signed on October 16, 2018. The Order assessed a civil penalty for the amount of $181,482.05. This Order covered the time period of leaking off-gases through August 29, 2018. An additional NOV was issued on November 14, 2018, for leaking off-gases on 32 days that the roaster operated between August 30, 2018, and November 5, 2018. An Order for this additional violation had not been issued at the time of inspection.

The facility was issued a NOV on September 7, 2018, for exceedances of the hours of operation limits for the Auxiliary Rental Boiler and Roaster Preheater specified by Condition E11-2 of Construction Permit #972072 for the months of April, May, and June 2018. An additional NOV was issued on November 14, 2018, for further exceedances discovered during this inspection. The additional exceedances occurred in July, August, September and October 2018. So far, the Auxiliary Rental Boiler has exceeded the limits during May, June, July, August, September and October 2018 and the Roaster Preheater has exceeded the limits during April, May, June, July, August, September, and October 2018. Nyrstar submitted a construction permit application on August 14, 2018, requesting an increase in the hours of operation limits. A construction permit had not been issued at the time of inspection. Nyrstar will remain out of compliance until such time that it receives a permit increasing the hours of operation limit or its hours of operation fall below the current limit.

Excursions related to Conditions E4-1, E5-2, and E8-1 also occurred during the inspection period. However, these excursions did not rise to the level of a violation.

Description of Facility Operations:
Nyrstar Clarksville, Inc., located in Montgomery County, manufactures zinc, sulfuric acid, and cadmium. Through the years this facility has been named Zinifex Clarksville, Inc., Pasminco Zinc, Savage Zinc, Inc. and Jersey Miniere Zinc. Nyrstar is headquartered in London, England. The facility was constructed in 1978 and has approximately 250 employees that work three shifts, seven days a week. Nyrstar merged with Zinifex and handles the manufacturing processes while Zinifex handles the mining operations.

The manufacturing process includes:
1) roasting zinc sulfide-rich concentrate to produce a zinc oxide (calcine),
2) dissolving the calcine in sulfuric acid to produce a zinc sulfate solution (leaching),
3) purification of the zinc sulfate solution to remove impurities,

4) electrowinning the zinc as a metal from the purified solution, and
5) melting and casting the zinc metal into ingots.

The zinc is used primarily for the galvanization of steel, sulfuric acid is used for fertilizer and steel mills, and cadmium is used in batteries and other electronics. The facility's potential emissions of PM, SO_2, NOx, HAPs, and VOCs classify it as a Title V facility.

Nyrstar stopped using source -07, Anode Cleaning and Casting, in March of 2008. This operation was outsourced as a cost saving measure to a company located in Alabama. All of the equipment is still on-site and functional. Nyrstar wishes to keep this source on the permit in case there is ever a decision to move the operation back. Nyrstar also stopped using source -25, Lead Anode Pre-Coating Operation, in early 2008.

Nyrstar became subject to MACT Subpart GGGGGG as of January 23, 2007, due to being a primary zinc production facility. Nyrstar conducted a performance test in 2007, and must conduct subsequent performance tests every 5 years. The last tests were conducted on September 25 and 26, 2012, and September 6, 2017. These tests were for the cadmium and zinc melting furnaces.

During this compliance period, Nyrstar worked under Minor Modification #2 that was issued on May 27, 2016, and Construction Permit #972072P that was issued on October 27, 2016, and Amended (Amendment #1) on February 7, 2017, (although the permit erroneously lists the issuance year as 2016) and March 31, 2017 (Amendment #2).

Review Status of Required Reports:
Include all reports due/reviewed since last inspection

Report Tracking Number	Report Type	Report End Date	Due Date	Postmark	Received	Received in EFO	Acknowledged (last review date)	Report Adequate (Y/N) if N, explain below
24428	SAR (1)	12/31/17	03/01/18	-	01/29/18	01/29/18	01/31/18	Yes
25217	SAR (2)	06/30/18	08/29/18	-	08/29/18	08/29/18	08/31/18	Yes
24430	ACC	06/30/18	08/29/18	-	08/29/18	08/29/18	08/31/18	Yes
25095	Quarterly (3)	12/31/17	01/31/18	-	01/08/18	-	01/25/18	Yes
26633	Quarterly (3)	03/31/18	04/30/18	-	04/27/18	-	05/22/18	Yes
27548	Quarterly (3)	06/30/18	07/30/18	-	07/31/18 (4)	-	09/06/18	Yes

Comments:
1.) The original submittal did not include a cover letter, summary, and identification of deviations. Additional information was requested on January 30, 2018. A corrected SAR was received on January 30, 2018. Additionally, the facility reported 6 missed pressure drop readings for Source 01 and 1 missed pressure drop reading for Source 03. However, these excursions did not rise to the level of a violation.
2.) The original submittal lacked the barge unloading pressure drop logs, the zinc dust atomization pressure drop logs (E4-1), February through March Auxiliary Rental Boiler and Roaster Preheater hours of operation logs (E11-2), and the January monthly hours of operation log for the Secondary Acid Plant Preheater (E14-7). Additional information was requested on August 30, 2018. A revised report was received August 30, 2018. Exceedances of the operating time limits specified by Condition E11-2 for the Auxiliary Rental Boiler and Roaster Preheater were reported. A NOV was issued by the NEFO. Additionally, deviations with Conditions E4-1, E5-2, and E8-1 concerning pressure drops were reported. These deviations did not rise to the level of a violation. Deviations with Condition E5-1 were reported; however, the NEFO has already addressed this deviation with a NOV dated June 20, 2018. Also, deviations with Condition E5-8 concerning excess SO2 emissions were reported for January and February 2018. The Compliance Validation Section addressed these deviations in a NOV dated May 22, 2018.
3.) Quarterly reports are reviewed by the Compliance Validation Section.

4.) The quarterly report was received 1 day late. Compliance Validation was contacted on October 22, 2018. According to Garrett Ammons, they chose not to issue a NOV and instead reminded the facility that quarterly reports are due within 30 days after the end of the reporting period.

Permit Status:

Permit Number	Source Number(s)	Issue/Amendment/Modification Date	Expiration Date	Next Application Due Date	Next Application Received Date
560146	01, 03, 06- 09, 11,12, 14, 20, 24, 25, 55, 56, 99	Issued: 02/13/13 Amendment #1: 10/18/13 Minor Mod #1: 10/30/13 Minor Mod #2: 05/27/16	02/12/18	08/16/17	08/10/17

Comments: On October 18, 2013, Nyrstar was granted an Administrative Amendment #1 for a change in responsible person. The new responsible person was named as Mr. Stephen James. However, Nyrstar submitted an additional notification on June 11, 2018, naming Mr. Kevin Cook, SHEQ Manager, as the new responsible person. An amendment reflecting this change had not been issued at the time of inspection.

On October 30, 2013, Nyrstar received Minor Modification #1 to add new condition numbers MME10-1 and MME10-2 (replacing original condition # E10-1) to incorporate the new requirements under part 63 subpart GGGGGG. A bag leak detection system was installed for source -11, Cadmium Melting and Casting Furnace. Source 11 was stack tested on February 20, 2014.

Minor Modification #2, issued on May 27, 2016, gave a new facility-wide lead emission limit (E3-7(MM2)), and added 6 existing RICE emergency engines (new sources -55 and -56), permit conditions E16-1(MM2) through E16-11(MM2) and E17-1(MM2) through E17-15(MM2), respectively.

E3. General Permit Requirements.

E3-1. Fugitive dust emissions from this facility shall be controlled as specified in Chapter 1200-03-08 of the Tennessee Air Pollution Control Regulations. Specifically, fugitive emissions shall be controlled such that there are no visible emissions beyond the property line of the property on which the emission originate, excluding legitimate malfunctions of equipment, for more than five (5) minutes per hour or twenty (20) minutes per twenty-four hours. Compliance with this standard shall be determined by Tennessee Visible Emission Evaluation Method 4 as adopted by the Tennessee Air Pollution Control Board on April 16, 1986.

TAPCR 1200-03-08

Compliance Method: The permittee shall assure compliance with this condition by adhering to the Nyrstar Dust Control Plan dated October 11, 2001, and updated March 2010.

Comments:
According to the facility contact, Nyrstar is complying with the dust control plan. No fugitive dust was observed at the time of inspection.

E3-2. Visible emissions from all roads and parking lots at the facility shall not exceed ten (10) percent opacity. Compliance with this standard shall be determined by Tennessee Visible Emission Evaluation Method 1 as adopted by the Tennessee Air Pollution Control Board on April 29, 1992 and amended on September 29, 1982 and August 24, 1984.

Permit 043752P, Condition 2

Compliance Method: The permittee shall assure compliance with this condition by adhering to the Nyrstar Dust Control Plan dated October 11, 2001, and updated March 2010.

Comments:
According to the facility contact, Nyrstar is complying with the dust control plan. No visible emissions from roads and parking lots were observed at the time of inspection.

E3-3. The Technical Secretary of the Air Pollution Control Board directs Nyrstar Clarksville, Inc. located on Zinc Plant Road in Clarksville, TN to continue monitoring for PM10 particulate matter and Sulfur Dioxide at the site described below. The source owner or operator shall continue to conduct post-construction PM10 monitoring necessary to determine the effect emissions from the stationary source or modification may have, or are having on air quality. The monitoring sites will continue to be located near the intersection of the UTM coordinates listed below and identified on the attached map by location name.

Location Name for PM 10 Monitor: Site Number A (Co located)

Location Coordinates: Lat: 36.520298 Long: -87.3955

The PM10 monitoring network will continue to be operated and maintained as directed by the Technical Secretary of the Air Pollution Control Board to insure that complete, precise and accurate data are generated and reported. The data submitted shall be judged complete if at least 75% of the samples per site for PM10 are provided. The requirement for accurate and precise data shall continue to be judged as acceptable if a written Quality Assurance Plan should be provided within 30 days of receipt of this permit. If the Quality Assurance Plan was previously submitted, the most recently updated version of the plan should be provided. The plan once accepted must be utilized and employed for all future ambient PM10 monitoring. Any deviation from this Quality Assurance Plan would be considered as evidence of non-compliance with this permit condition.

Air quality data reporting must meet all the requirements set forth in Division Rule 1200-03-12-.02. Data are to be reported in the proper AQS format and must be accompanied by a statement of validation attesting data accuracy. Data are to be reported in standard time only and in units of measurement particular to the pollutant being observed. Failure to meet the requirements of this policy will be regarded as non-compliance. Data should be submitted in magnetic form within one month after the end of the month in which it was collected. Any recorded ambient air quality exceedance shall be reported to the Tennessee Division of Air Pollution Control within 24 hours of its discovery.

The Technical Secretary of the Air Pollution Control Board directs Nyrstar Clarksville, Inc. located on Zinc Plant Road in Clarksville, TN to continue monitoring for Sulfur Dioxide at the site described below. The source owner or operator shall continue to conduct post-construction SO_2 monitoring necessary to determine the effect emissions from the stationary source or modification may have, or are having on air quality. The monitoring sites will continue to be located near intersection of the UTM coordinates listed below and identified on the attached map by location name.

Location Name for SO_2 Monitor: Site Number C

Location Coordinates: Lat: 36.5051 Long: -87.3977

The SO_2 monitoring site will continue to be operated and maintained as directed by the Technical Secretary of the Air Pollution Control Board to insure that complete, precise and accurate data are generated and reported. The data submitted shall be judged complete if at least 75% of the hourly values per site per day and 75% of sampling days each calendar quarter of each year for SO_2 are reported. Additionally, the maximum 5-minute block average SO2 concentration for each of the above required hours must also be reported. The 5-minute data shall be judged complete if at least 75% of the 5-minute block averages in each hour are provided. The requirement for accurate and precise data shall continue to be judged as acceptable if a written Quality Assurance Plan for the SO_2 monitoring network is provided and accepted by this Division. This written Quality Assurance Plan should be provided within 30 days of receipt of this permit. If the Quality Assurance Plan was previously submitted, the most recently updated version of the plan should be provided. The plan once accepted must be utilized and employed for all future

ambient SO2 monitoring. Any deviation from this Quality Assurance Plan would be considered as evidence of non-compliance with this permit condition.

Air quality data reporting must meet all the requirements set forth in Division Rule 1200-03-12-.02. Data are to be reported in the proper AQS format and must be accompanied by a statement of validation attesting data accuracy. Data are to be reported in standard time only and in units of measurement particular to the pollutant being observed. Failure to meet the requirement of this policy will be regarded as non-compliance. Data should be submitted in magnetic form within one month after the end of the month in which it was collected. Any recorded ambient air quality exceedance shall be reported to the Tennessee Division of Air Pollution Control within 24 hours of its discovery.

Permit 043752P, Condition 3

Comments:
The facility operates and maintains the required ambient air monitoring equipment according to its Quality Assurance Plan. Ambient air monitoring data is submitted to the Central Office for review. The Division's Quality Assurance Section audits Nyrstar's ambient air monitoring program.

E3-4. This facility is subject to the requirements of 40 CFR, Part 63, Subpart GGGGGG, National Emission Standards for Hazardous Air Pollutants for Primary Nonferrous Metals Area Sources – Zinc, Cadmium, and Beryllium. The following sources at this facility have been identified as being subject to an emission standard contained in Subpart GGGGGG:

Source No.	Stack ID	Description	Condition No.	Federal Rule Citation
63-0092-03	03018-00-ST	Zinc Ore Roaster /Acid Plant Tail Gas Stack	E5-1	63.11162(a)
63-0092-07	13110-00-ST	Anode Casting Furnace Baghouse	E7-1	63.11162(b)(4)
63-0092-08	09400-00-ST	Zinc Melting Furnace Baghouse	E8-1	63.11162(b)(6)
63-0092-09	11008-00-ST	Dross Handling & Zinc Dust Furnace Baghouse	E9-1	63.11162(b)(6)
63-0092-11	14176-00-ST	Cadmium Melting Furnace Baghouse	E10-1	63.11162(b)(5)
63-0092-20	09870-00-ST	Scrap Zinc Furnace and Alloy Furnace Baghouse	E13-2	63.11162(b)(6)

The permittee shall comply with all applicable requirements of 40 CFR, Part 63, Subpart GGGGGG. This includes, but is not limited to, the following:

A. Emission Standard / Periodic Monitoring.

The permittee shall comply with the emission standards and periodic monitoring requirements contained in Conditions E5-1, E7-1, E8-1, E9-1, E10-1, and E13-2.

40 CFR 63.11162(a), (b), and (c)

Comments:
For information only.

B. Performance Tests.

For each furnace identified in the table above, the permittee shall conduct a performance test to demonstrate compliance with the applicable emission standard. The Zinc Ore Roaster/Acid Plant Tail Gas Stack is subject to the emission standard outlined in 63.11162(a), as provided in **Condition E5-1,** requiring only that the Zinc Ore Roaster is exhausted to a particulate matter control device followed by a sulfuric acid plant. The performance tests required in **Condition E3-4 Section B** are applicable to those sources with emission standards provided in 63.11162(b)(1) through (6**).** The performance tests shall be conducted according to 63.7(e)(1) using the test methods and procedures outlined in 63.11163(f)(3)(i) through (v). Subsequent performance tests must be conducted every five (5) years. Results of performance tests shall be submitted to the Technical Secretary within 60 days of the date of the test. If a furnace

identified in the table above is not operating on the date that a subsequent performance test is due and subsequently resumes operation, the permittee shall:

1. Notify the Technical Secretary within 30 days of the date of resuming operations on the furnace,
2. Conduct a performance test according to the requirements in 40 CFR 11162(f)(3) within 120 days of the date of resuming operations on the furnace, and
3. Report the results of the performance test within 60 days of the date of the test.

40 CFR 63.11162(f) and (g)

Comments:
The Compliance Validation section is responsible for observing/reviewing performance tests. Nyrstar conducted an initial performance test in 2007 and must conduct subsequent performance tests every 5 years. The last tests were conducted on September 25 and 26, 2012, and September 6, 2017. These tests were for the zinc melting furnace baghouse. Performance test results for the 2017 test were received on September 28, 2017. The Compliance Validation Section acknowledged the test in a letter addressed to the facility and dated December 7, 2017.

C. Deviations.

The permittee shall submit a notification to the Technical Secretary of any deviation from the requirements of Subpart GGGGGG within thirty (30) days after the deviation. The notification must describe the probable cause of the deviation and any corrective actions or preventative measures taken.

40 CFR 63.11162(h)

Comments:
For information only.

D. Recordkeeping / Reporting.

The permittee shall maintain records of all required monitoring data and support information. This includes, but is not limited to, calibration and maintenance records for all monitoring equipment and copies of all reports required by Subpart GGGGGG. Reports shall be submitted semiannually in accordance with the conditions referenced in the table above and Condition E2(a) of this permit.

40 CFR 63.11162(i) and (j)

Comments:
For information only.

E. Operation and Maintenance.

The permittee shall maintain and operate all equipment covered under this subpart in a manner that does not cause a deviation from the applicable requirements. Maintenance records shall be retained for each air pollution control device in accordance with the conditions referenced in the table above. In the event of an emergency situation, the permittee shall comply with the requirements of either 40 CFR 63.11162(k)(3) or (4)

40 CFR 63.11162(k)

Comments:
Maintenance records for the time period of November 29, 2017, to October 18, 2018, were available for review. The inspector conducted a spot check of the maintenance records due to volume. For more information on the

specific records examined, please refer to the comments provided underneath the source specific conditions requiring maintenance records.

F. General Requirements.

The permittee shall comply with the General Provisions of 40 CFR, Part 63, Subpart A, according to Table 1 to Subpart GGGGGG of Part 63. The notification of compliance status required by 63.9(h) must include responsible official certification with the work practice standards in 63.11162(a) and must include the results of performance tests, including required monitoring data.

40 CFR 63.11164(a)

Comments:
The facility submitted a GGGGGG notification of compliance status to the Permitting Section on 04/10/07.

E3-5. Upon the malfunction/failure of any emission control device(s) serving this facility, the operation of the process(es) served by the device(s) shall be regulated by Chapter 1200-03-20 of the Tennessee Air Pollution Control Regulations.

Comments:
For information only.

E3-6. The permittee shall keep an up to date list of all equipment onsite and not in use, and make this list available to the Technical Secretary or designated representative. Inspection logs shall not be required for equipment on this list and operating equipment shall not be on this list.

Comments:
This list was available for inspection. The inspector performed a full review of the records for the time period of November 29, 2017, to October 18, 2018. These records were considered complete. The retractable spout baghouse, anode casting baghouse, silver lead alloy furnace, and pure lead furnace are currently not in use.

E3-7 (MM2). Total Lead emissions from this facility (all point and non-point sources) shall not exceed 0.49 tons per calendar year.
TAPCR 1200-03-09-.01(4) and the information contained in company's minor modification application dated February 19, 2015.

Compliance Method: Compliance with this requirement shall be assured by reporting of Lead emissions from this facility on the semi-annual report required in condition E2(a) and operating the lead emitting sources and associated control devices in accordance with permit requirements specified in source conditions. The records for reporting shall include monthly totals of lead emissions for each source and a 6-month total for all the sources combined (facility total) for the reporting period covered by the semi-annual report submission.

Comments:
The inspector performed a full review of the required records for the time period of November 29, 2017, to October 18, 2018. These records were considered complete. Total lead emissions for 2017 were 0.06 tons. Lead emissions thus far in 2018 are 0.025 tons.

E3-8 (MM2). Identification of Responsible Official, Technical Contact, and Billing Contact

(a) The applications that were utilized in the preparation of this permit (Minor Modification #2) are dated February 19, 2015, April 9, 2015 and February 25, 2016 and signed by Stephen E. James, Plant Manager of the permitted facility. If this person terminates his/her employment or is assigned different duties such that he/she is no longer a Responsible Official for this facility as defined in part 1200-03-09-.02(11)(b)21 of the Tennessee Air Pollution Control Regulations, the owner or operator of this air contaminant source shall notify the Technical Secretary of the change. Said notification must be in writing and must be submitted within thirty (30) days of the change. The notification shall include the name and title of the new

Responsible Official and certification of truth and accuracy. All representations, agreement to terms and conditions, and covenants made by the former Responsible Official that were used in the establishment of the permit terms and conditions will continue to be binding on the facility until such time that a revision to this permit is obtained that would change said representations, agreements, and/or covenants.

(b) The applications that were utilized in the preparation of this permit (Minor Modification #2) are dated are dated February 19, 2015, April 9, 2015 and February 25, 2016 and identifies Chad Crocker, Environmental Specialist as the Principal Technical Contact for the permitted facility. If this person terminates his/her employment or is assigned different duties such that he/she is no longer the Principal Technical Contact for this facility, the owner or operator of this air contaminant source shall notify the Technical Secretary of the change. Said notification must be in writing and must be submitted within thirty (30) days of the change. The notification shall include the name and title of the new Principal Technical Contact and certification of truth and accuracy.

(c) The applications that were utilized in the preparation of this permit (Minor Modification #2) are dated February 19, 2015, April 9, 2015 and February 25, 2016 and identifies Kellye Thomas, as the Billing Contact for the permitted facility. If this person terminates his/her employment or is assigned different duties such that he/she is no longer the Billing Contact for this facility, the owner or operator of this air contaminant source shall notify the Technical Secretary of the change. Said notification must be in writing and must be submitted within thirty (30) days of the change. The notification shall include the name and title of the new Billing Contact and certification of truth and accuracy.

Comments:

(a)Kevin Cook, SHEQ Manager, is the new Responsible Official and Principal Technical Contact. Mr. Cook became the new Responsible Person effective June 11, 2018. Written notification of this change was submitted to the Division on the same date.

(b) Chad Crocker left Nyrstar in January 2018. The facility named Dave Gilland as the new Principal Technical Contact in a letter addressed to the Division and dated January 8, 2018. The Principal Technical Contact changed again from Dave Gilland to Kevin Cook on June 4, 2018. Nyrstar submitted notification of this change on June 4, 2018.

(c)Talitha Wilson is the new Billing Contact effective November 1, 2016. Nyrstar submitted notification of this change on November 18, 2016.

63-0092-01 **Source Identification:** Roaster Feed Material Handling, Barge, Rail, Truck Unloading, Transfer Storage, Screening and Grinding with Fabric Filter Control:

Stack ID	Location	Height above grade (ft)	Inside diameter at outlet (ft)	Exhaust flowrate at dry standard condition (dscfm)	Minimum Pressure Drop (inch of Water Column)
16065-00-BA	Barge Unloading Baghouse	11	3.5 x 2.7	48,000	1.0
01100-00-ST	Rail/Truck Unloading Baghouse	30	4	56,850	0.5
01260-00-ST	Retractable Spout Baghouse	50	1.0	1,750	NA
01120-00-ST	Transfer Tower Baghouse	58	1.5	5,500	1.0
01140-00-DC	Concentrate Storage Building North Baghouse	19	9 x 2	26,375	0.7
01160-00-ST	Concentrate Storage Building South Baghouse	19	9 x 2	26,375	0.7
01180-00-ST	Screening Tower Baghouse	54	1 x 2	6,200	1.0

Conditions E4-1 thru E4-5 - apply to source 63-0092-01.

E4-1. Total particulate matter (PM) emitted from this source (63-0092-01) shall not exceed 0.015 grains per dry standard cubic foot of exhaust gas (21.99 pounds per hour).

TAPCR 1200-03-09-.01(4)(j) PSD Requirement (12/1/76 letter from EPA)

Compliance Method: This source (63-0092-01) shall not operate without the use of air pollution control device(s) (fabric filters), except in accordance with TAPCR 1200-03-20. Compliance with this condition shall be assured by operating the fabric filters at or higher than the minimum

pressure drops corresponding to the exhaust emissions of 0.015 grains per dry standard cubic foot of exhaust gas and the daily recording of the pressure drop across the fabric filters in Barge Unloading Baghouse, Rail/Truck Unloading Baghouse, Transfer Tower Baghouse, Concentrate Storage Building North Baghouse, Concentrate Building South, and Screening Tower Baghouse. For Retractable Spout Baghouse, compliance with the particulate emission limitation shall be assured by proper maintenance of the baghouse. A monthly log of maintenance shall indicate what maintenance and repair was done, when it was done, by whom, and when problems were rectified, showing time and date. This information shall include, but is not limited to, filter inspections, filter replacement, and time of use of the emergency/standby venting from fabric filters. A log of the operation hours when this line is operating without the baghouse system fully operating must be kept.

Compliance with this requirement shall be assured by maintaining a minimum pressure drop of 1.0, 0.5, 1.0, 0.7, 0.7, and 1.0 inch of water column respectively across the fabric filters in Barge Unloading Baghouse, Rail/Truck Unloading Baghouse, Transfer Tower Baghouse, Concentrate Storage Building North Baghouse, Concentrate Building South Baghouse, and Screening Tower Baghouse. The pressure drop shall be recorded once daily when this source is in operation. The days when the source does not operate shall be noted. In the event that all bags are replaced simultaneously, the permittee will record in a separate log, the date complete replacement is made and record daily pressure drop across that particular baghouse until the minimum pressure drop for the baghouse is reached. Once reached, the standard recordings shall be made and a report of the time required to reach the minimum pressure drop shall be calculated. This report shall be included with that current semiannual period submittal. All logs shall be recorded in a suitable permanent form and kept available for inspection and be used to certify compliance with this condition and in the reporting requirements of E2 of this permit, and must be retained for a period of not less than five years. The information obtained from the study shall be incorporated into this permit by administrative permit amendment to set operating parameters while the filter cake is accumulating on the new bag filter. Reports and certifications shall be submitted in accordance with Condition E2 of this permit. The Retractable Spout Baghouse shall not require a report as long as the Retractable Spout is not in use. When in use, the Retractable Spout shall be subject to all relevant permit conditions.

During the time when the concentrate handling process is in operation, it will be considered acceptable to operate either the Concentrate Storage Building North Baghouse exclusively or the Concentrate Storage Building South Baghouse exclusively, or both of these baghouses simultaneously.

Comments:

Particulate matter emissions records are not required. The retractable spout baghouse was not used during the inspection period. The facility voluntarily keeps the maintenance records for the other baghouses. These records were available for the time period of November 29, 2017, to October 18, 2018. The inspector performed a spot check due to volume. The control device and time period of records reviewed are given in the table below.

Control Device:		Maintenance Records Reviewed:
16065-00-BA	Barge Unloading Baghouse	July 1, 2018 to August 30, 2018
01100-00-ST	Rail/Truck Unloading Baghouse	July 1, 2018 to August 30, 2018
01120-00-ST	Transfer Tower Baghouse	July 1, 2018 to August 30, 2018
01140-00-DC	Conc. Storage Building N. Baghouse	July 1, 2018 to August 30, 2018
01160-00-ST	Conc. Storage Building S. Baghouse	July 1, 2018 to August 30, 2018
01180-00-ST	Screening Tower Baghouse	July 1, 2018 to August 30, 2018

Pressure drop records were available for review. The inspector performed a full review of the records for the time period of November 29, 2017, to October 18, 2018. No pressure drop readings were recorded for: the

Barge Unloading Baghouse on December 27, 2017, June 15, 2018, June 26, 2018, and June 27, 2018, the Rail/truck Unloading Baghouse on December 27, 2017, the Transfer Tower Baghouse on December 27, 2017, and June 15, 16, 24, 25, 26, 27, 29, and 30, 2018, the Concentrate Storage Building North Baghouse on December 27, 2017, the Concentrate Building Storage South Baghouse on December 27, 2017, and the Screening Tower Baghouse on December 27, 2017. Additionally, manometer readings fell below 0.5 inches at the Rail/Truck Unloading Baghouse on January 25, 2018. A work order to replace the manometer was put in on the same date. The baghouse was off from January 26-30, 2018. The manometer was replaced during this time and readings returned to normal when the process re-started on January 31, 2018. On January 26, 2018, the manometer on the Concentrate Storage Building North Baghouse read 0. A work order was entered on the same date. The manometer was replaced on January 27, 2018, and readings returned to normal. These excursions did not exceed the de minimis.

Pressure drop readings taken at the time of inspection were as follows:

Control Device:		Pressure Drop "H20:
16065-00-BA	Barge Unloading Baghouse	0.0* See Comments
01100-00-ST	Rail/Truck Unloading Baghouse	3.5
01120-00-ST	Transfer Tower Baghouse	1.0
01140-00-DC	Conc. Storage Building N. Baghouse	4.0
01160-00-ST	Conc. Storage Building S. Baghouse	14.0
01180-00-ST	Screening Tower Baghouse	1.0

Comments:
The Barge Unloading Baghouse was operating at the time of inspection but the manometer read 0. The process was running and no visible emissions were observed. Mr. Cook immediately notified maintenance personnel that the manometer was not working correctly. Facility records indicated that the pressure drop was normal prior to October 18th. This excursion will be noted in the next SAR.

E4-2. Visible emissions from stacks at this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count).

TAPCR 1200-03-05-.01(1)

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

Comments:
This source was operating and no visible emissions were observed at the time of inspection.

E4-3. All conveyor systems and transfer points in this source shall be operated in a manner consistent with keeping fugitive dust emissions to an absolute minimum and shall meet all specifications submitted to this Division in permit applications and supplementary material.

Permit 037096P, Condition 6

Compliance Method: The permittee shall assure compliance with this condition by adhering to the Dust Control Plan dated October 11, 2001 and updated March 2010.

Comments:

According to the facility contact, Nyrstar is complying with the dust control plan. No fugitive dust was observed at the time of inspection.

E4-4. Visible emissions from the zinc oxide process feed material storage building shall not exhibit greater than twenty percent (20%) opacity, except for one (1) six-minute period in any one (1) hour period and for no more than four (4) six-minute periods in any twenty-four (24) hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average).

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 that is enclosed as Attachment 2.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

Comments:
This source was in operation and no visible emissions were observed at the time of inspection.

E4-5. The Retractable Spout Baghouse is subject to 40 CFR Part 64-Compliance Assurance Monitoring (CAM) for particulate matter. The following table summarizes, but does not necessarily include all of the CAM requirements for the Retractable Spout Baghouse. CAM reporting may be fulfilled through recordkeeping and reporting requirements for **Conditions E4-1, E4-2, and E2(a)**.

	Indicator No. 1	**Indicator No. 2**
I. Indicator [64.6(c)(1)(i)]	Inspection/maintenance	Visible emissions
Measurement Approach [64.6(c)(1)(ii)]	Daily inspection according to I/M checklist; maintenance performed as needed.	A certified visible emissions inspector will evaluate visible emissions in accordance with EPA Method 9 and the Opacity Matrix.
II. Indicator Range [64.6(c)(2)]	NA	Visible emissions shall not exceed 20 % opacity. Visible emissions greater than 20% opacity (with due allowance for reader error) are considered deviations.
III. Performance Criteria [64.6(c)(1)(iii)]		
A. Data Representativeness [64.3(b)(1)]	Inspections are performed at the baghouse.	Visible emissions inspector will observe the requirements of EPA Method 9 and the Opacity Matrix.
B. Verification of Operational Status [64.3(b)(2)]	NA	Visible emissions inspector will ensure that the emission unit is operational during the VEE.
C. QA/QC Practices and Criteria [64.3(b)(3)]	Qualified personnel perform inspection.	Visible emissions inspector will observe the requirements of EPA Method 9 and the Opacity Matrix.
D. Monitoring Frequency [64.3(b)(4)]	Daily inspection.	If necessary, an initial VEE shall be conducted within a year of permit issuance. Additional VEE's shall be conducted as required by the Opacity Matrix.
Data Collection Procedure	Records are maintained to document the daily inspection and any required maintenance.	As required by EPA Method 9 and the Opacity Matrix.
Averaging Period	NA	As required by EPA Method 9 and the Opacity Matrix.

Comments:

The retractable baghouse was not used during the inspection period.

63-0092-03	**Source Identification**	Zinc Ore Roasting and Sulfuric Acid Plant Production: Acid Plant Stack, Calcine Storage Bins, Dust Collector, and Roaster Plant Baghouse. Part 63 Subpart GGGGGG			
Stack ID	**Location**	**Height above grade (ft)**	**Inside diameter at outlet (ft)**	**Exhaust flowrate at dry standard condition (dscfm)**	**Minimum Pressure Drop (inch of Water Column)**
03018-00-ST	Acid Plant Tail gas Stack	200	4	40,605	NA
02020-11-ST	Calcine Processing Stack	60	1.33 x 1.25	2,482.8	0.5
05270-00-ST	Calcine Storage Silos	75	0.7 x 0.8	2,000.0	0.5
05019	Calcine Storage Silo #19	71	0.9x0.8	1,482	0.5

Condition E5-1thru E5- 17 apply to source 63-0092-03

E5-1. Off-gases from the Zinc Ore Roaster must be exhausted to a particulate matter (PM) control device and to a sulfuric acid plant, including during the charging of the roaster. Total particulate matter (PM) emitted from the Acid Plant Tail Gas Stack (03018-00-ST) shall not exceed 29.57 pounds per hour. (Note: virtually all PM from this source would be sulfuric acid mist, which falls under the definition of PM at 1200-03-2-.01(ii))

40 CFR 63.11162(a) and TAPCR 1200-03-07-.03(1)

Compliance Method: This source shall not operate without the low velocity mist eliminator. Routine inspections shall be performed on all control devices. Appropriate maintenance logs including inspections, and dates on which maintenance is performed shall be recorded in a suitable permanent form and kept available for inspection. These records must be retained for a period of not less than five (5) years.

Comments:

Particulate matter emissions records are not required. The required maintenance records were available for the time period of November 29, 2017, to October 18, 2018. The inspector performed a spot check of the baghouse maintenance records due to volume. The control device and time period of records reviewed are given in the table below. These records were considered complete.

Control Device:		**Maintenance Records Reviewed:**
02020-11-ST	**Calcine Processing Stack**	**July 1, 2018 to August 30, 2018**
05270-00-ST	**Calcine Storage Silos**	**July 1, 2018 to August 30, 2018**
05019	**Calcine Storage Silo #19**	**July 1, 2018 to August 30, 2018**

The tailgas mist eliminators (candle filters) were inspected during the September 2018 roaster shutdown project. Nyrstar was waiting on the vendor's (VIP) inspection report at the time of inspection.

The facility was issued a NOV on June 20, 2018, for off-gas leaks coming from the zinc ore roaster. The inspector made an unannounced site visit on June 12, 2018, in response to a complaint forwarded from the U.S. EPA alleging that the zinc ore roaster was leaking. The roaster dome was examined and determined to be leaking. A Director's meeting was held on June 14, 2018, and the Division decided to issue Nyrstar a NOV for non-compliance with this condition, which requires off-gases from the roaster to be ducted to a control device. The facility submitted an APC 31 on July 20, 2018. Nyrstar outlined plans for repairing the roaster dome in September 2018 and submitted a progress report on October 12, 2018. According to this report, Nyrstar spent over $500,000 repairing an area of the roaster approximately 25 ft x 35 ft. However, when the repairs were completed and the roaster began operating again, Nyrstar discovered that the roaster is still leaking off-gases. The inspector observed off-gases still leaking from the roaster dome at the time of this inspection. Nyrstar's solution is to build and install a new stainless steel dome cap that will be fitted over the existing roaster dome. The cost of the dome is estimated at $350,000. Nyrstar originally planned to have the new cap installed by late October or early November 2018. However, Kevin Cook stated during a subsequent telephone conversation with Division personnel on November 5, 2018, that Nyrstar had suffered a set-back in

its plans for constructing the cap because of limited availability of the type of stainless steel chosen and, therefore, construction and installation of the new cap will be delayed. The Division will make a subsequent site visit after the cap has been installed to verify that the leaks have been rectified. Nyrstar will remain out of compliance until such time that the roaster leaks have been successfully repaired. This violation, along with previous violations for excess SO2 emissions, was originally addressed by Order Number APC18-0099, which was signed on October 16, 2018. The Order assessed a civil penalty for the amount of $181,482.05. This Order covered the time period of leaking off-gases through August 29, 2018. An additional NOV was issued on November 14, 2018, for leaking off-gases on 32 days that the roaster operated between August 30, 2018, and November 5, 2018. An Order for this additional violation had not been issued at the time of inspection.

E5-2. Total particulate matter (PM) emitted from the Calcine Processing Stack (02020-11-ST), the Calcine Storage Silos Stack (05270-00-ST), and the calcine storage silo #19 (05019) shall not exceed 0.015 grains per dry standard cubic foot of exhaust gas (0.77 pounds per hour).

TAPCR 1200-03-09-.01(4)(j) and PSD Requirement (12/1/76 letter from EPA)

Compliance Method: Compliance with this requirement shall be assured by maintaining a minimum pressure drop of 0.5 inches of water across the calcine processing stack, calcine storage silos stack baghouses, and calcine storage silo #19. The pressure drop for each baghouse shall be recorded once daily when the source is in operation. The days when the source does not operate shall be noted.

For lower pressure drop reading(s) resulting from replacement of bags, the permittee shall record the deviation(s) as such in their daily records. Due allowance will be made for lower pressure drop reading(s) which follow replacement of bags provided the permittee establishes to the satisfaction of the Technical Secretary that these lower readings resulted from the replacement of bags.

Comments:
Pressure drop records were available for review. The inspector performed a full review of the records for the time period of November 29, 2017, to October 18, 2018. These records were considered complete. Pressure drop readings below 0.5 inches of water were recorded for the Calcine Storage Silo Stack Baghouse on May 28 and 29, 2018. The bags had been changed on May 27, 2018, and a baghouse air line was repaired on May 28, 2018. Readings returned to normal on May 30, 2018. These excursions did not exceed the de minimis. Additionally, a belt broke on the Bin 19 baghouse on September 14, 2018. Maintenance personnel had to order a new belt. The new belt was installed on September 30, 2018, and the baghouse was re-started. Pressure drop readings taken at the time of inspection were as follows:

Control Device:	Pressure Drop "H2O:
Calcine (storage bin) Processing Baghouse	5.0
Calcine Storage Silo Stack Baghouse	4.0
Bin 19 Baghouse	7.3

E5-3. All calcine conveyor systems, except the ball mill conveyor system, and the conveyor system between the intermediate storage bin and the main storage bins, shall be non-pneumatic systems and all calcine conveyor systems shall be completely enclosed with no emissions to the atmosphere.

Permit 044790P, Condition 2

Comments:
According to the facility contact, the conveyor system is non-pneumatic. The conveyor system was covered at the time of inspection and no fugitive emissions were observed.

E5-4. The source owner or operator shall comply with the notification and record-keeping requirements set forth in paragraph 1200-03-16-.01(7) of the Tennessee Air Pollution Control Regulations.

Permit 044790P, Condition 5

Comments:
For information only.

E5-5. Visible emissions from the Acid Plant Tail Gas Stack (03018-00-ST) shall not exhibit greater than twenty percent (20%) opacity, except for one (1) six-minute period in any one (1) hour period and for no more than four (4) six-minute periods in any twenty-four (24) hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average).

TAPCR 1200-03-05-.03(6) and TAPCR 1200-03-05-.01(1)

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 that is enclosed as Attachment 2.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

Comments:
This source was operating at the time of inspection and no visible emissions were observed.

E5-6. Visible emissions from the calcine processing baghouse stack (02020-11-ST) and the calcine storage baghouse stacks (05270-00-ST and 05019) shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count).

TAPCR 1200-03-05-.01

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

Comments:
This source was operating at the time of inspection and no visible emissions were observed.

E5-7. The acid plant bypass on the zinc ore roaster shall not be opened while concentrate is being fed to the roaster. This bypass is to be used for the purposes of: 1) preheating or cooling the roaster, or 2) maintaining adequately high temperatures in the acid plant converter during brief shutdowns to avoid the necessity of a preheater assisted startup.

Permit 044790P, Condition 9

Comments:
According to the facility contact, the ore roaster is not operated in bypass while concentrate is being fed to the roaster. The facility certifies compliance with this condition annually.

E5-8. The sulfur dioxide concentration in the acid plant tail gas stack shall not exceed 650 parts per million (0.065 percent by dry volume basis) maximum 2 hour average nor 233 pounds per hour of sulfur dioxide emissions.

Compliance Method: Compliance with this emission standard shall be determined through the use of continuous in-stack monitoring for sulfur dioxide.

Consistent with the provisions of Rule 1200-03-20-.06 of the Tennessee Air Pollution Control Regulations, no notice of violation shall be automatically issued unless the specified de minimums level of one (1) 24-hour period per year of sulfur dioxide emissions in excess of the applicable sulfur dioxide emissions standard, as measured by the continuous in-stack sulfur dioxide emissions monitoring system, is exceeded. This exemption is applicable provided that good operational and maintenance practices are utilized for both the process equipment and the associated air pollution control equipment, and the 90 percent operational availability of the sulfur dioxide monitoring system is maintained.

Written responses to the quarterly reports of excess emissions shall constitute prima facie evidence of compliance with the applicable sulfur dioxide emission standard. For purposes of annual certification of compliance with the applicable visible emissions condition, the acceptance, by the Division, of the quarterly reports of excess emissions shall be the basis of said certification.

TAPCR 1200-03-16-.24(4)(a)

Comments:
Quarterly reports of excess emissions are submitted to the Compliance Validation Section for review. Nyrstar reported SO2 exceedances on December 14 and 23, 2018. Compliance Validation excused these exceedances in a letter addressed to Nyrstar and dated January 25, 2018. Additional exceedances were reported between the time period of January 12, 2018, and February 17, 2018, due to the progressive failure of an acid plant heat exchanger. Compliance Validation responded with a Notice of Violation dated May 22, 2018. The acid plant heat exchanger was replaced during February 17-22, 2018. Only one exceedance has occurred since the replacement. On August 25, 2018, the table feeder plugged resulting in no feed to the roaster. One 2-hour average SO2 concentration of 678 ppm was recorded. This incident will be reported in the Quarterly Report that is due October 30, 2018. The Compliance Validation Section will make a compliance determination.

The acid plant tail gas SO2 CEM was reading 228 ppm at the time of inspection.

E5-9. Quality Assurance Condition for the Sulfur Dioxide Monitoring System.

Quality assurance checks shall be performed on the sulfur dioxide monitoring system on a biennial calendar basis. The quality assurance checks shall consist of a repetition of the relative accuracy portion of the Performance Specification Test. Written reports of the quality assurance checks shall be submitted to the Technical Secretary.

Within ninety (90) days of each major modification or major repair of the sulfur dioxide emissions monitor, a repeat of the performance specification test shall be conducted. A written report of the performance specification test shall be submitted to the Technical Secretary as proof of the continuous operation of the sulfur dioxide emissions monitoring system within acceptable limits.

TAPCR 1200-03-10-.02(1)(a)

Comments:
SO2 RATAs were conducted on September 1, 2015, and September 6, 2017. Reports of these checks are submitted to the Division's Compliance Validation Section for review.

E5-10. From the emissions data generated by the continuous in-stack sulfur dioxide monitoring system, quarterly reports of excess sulfur dioxide emissions shall be generated. The format of these quarterly reports shall meet the requirements of Paragraph 1200-03-10-.02(2) of the Tennessee Air Pollution Control Regulations. These reports shall be submitted to the Division no later than thirty (30) days after the end of each calendar quarter.

TAPCR 1200-03-10-.02(2) and TAPCR 1200-03-09-.02(11)(e)1(iii)

Comments:

Quarterly reports are submitted to the Compliance Validation Section for review. Quarterly reports were submitted to the Division on January 8, 2018 (4th quarter), April 27, 2018 (1st quarter), and July 31, 2018 (2nd quarter). The July 31, 2018, submittal was 1 day late. According to Garrett Ammons, Compliance Validation, this violation is excusable.

E5-11. Operational Availability Condition for the Sulfur Dioxide Monitoring System

The use of continuous in-stack monitoring for sulfur dioxide is the method by which this source proves continual compliance with the applicable sulfur dioxide emission limitation. Therefore, for this source to demonstrate continual compliance with the applicable sulfur dioxide emission limitation, the sulfur dioxide monitoring system shall be fully operational for at least ninety-five (95) percent of the operational time of the monitored unit during each month of the calendar quarter. An operational availability level of less than this amount may be considered the basis for declaring the fuel burning installation in noncompliance with the applicable monitoring requirements, unless the reasons for the failure to maintain these levels of operational availability are accepted by the Division as being legitimate malfunctions of the instruments or due to limited operation of the monitored units.

TAPCR 1200-03-10-.02(1)(a)

Comments:
For information only. Quarterly reports are submitted to the Compliance Validation Section for review.

E5-12. For sulfur dioxide, two-hour averages shall be calculated from eight or more equally spaced data averages over each two-hour period, except during periods when calibration, quality assurance, or maintenance are being performed. A valid one-hour average shall consist of at least two data points with each representing a fifteen minutes time period. Hourly sulfur dioxide emission rates are not calculated if the affected facility is operated less than 30 minutes in a one-hour period.

Here a day is defined as the twenty-four hour time period from midnight to midnight and an hour is defined as any one of the twenty-four successive sixty minute time blocks beginning at midnight.

Data recorded during periods of monitoring system breakdown, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages.

TAPCR 1200-03-09-.02(11)(e)(1)(iii); 1200-03-10-.02(1)(a); and 1200-03-10-.02(2)
Comments:
For information only.

E5-13. For sulfur dioxide monitoring, the reports referenced in condition E5-10 shall consist of:

(A) Emission averages, in the units of the applicable standard, for each averaging period during operation of the source.
(B) Identification of each averaging period in which the applicable standard was exceeded and the nature and cause of excess emissions, if known;
(C) The date and time identifying each period during which the system was inoperative, except for zero and span checks, and the nature of system repairs or adjustments shall be reported. The Technical Secretary may require proof of system performance whenever system repairs or adjustments have been made; and
(D) When no excess emissions have occurred and the system has not been inoperative, repaired, or adjusted, such information shall be included in the report.

TAPCR 1200-03-10-.02(2) and 1200-03-09-.02(11)(e)1(iii)

Comments:
Quarterly reports are submitted to the Compliance Validation Section for review.

E5-14. For fee purposes, the maximum NOx emitted from the Tail Gas Stack (03018-00-ST) shall not exceed 38 tons per any consecutive 12-month period.

Compliance Method: Compliance with this condition will be satisfied when permittee roasts no more than 36% high nitrogen concentrate (i.e. , Century concentrate) or blends thereof in any 12-month averaged period. A log of Century concentrate usage, in a form that readily shows compliance with the aforementioned 36% usage limit, will be maintained at the source location and kept available for inspection by the Technical Secretary or his representative. This log must be retained for a period of not less than five years.

Sample Calculation:

Tested emission rate: 7.10 lb/hr NOx at 36% Century Concentrate

NOx emissions = 7.10 lb/hr x 8760 hr/yr /2000 lb/ton
NOx emissions = 31.1 ton/yr x ~ 25% safety factor
NOx emissions = 38 ton/yr

TAPCR 1200-03-26-.02(d)3

Comments:
Century concentrate was not used during the inspection period. According to Mr. Cook, the mine that this ore comes from is closed.

E5-15. The Sulfuric Acid Plant is subject to 40 CFR Part 64-Compliance Assurance Monitoring (CAM) for sulfur dioxide. The following table summarizes, but does not necessarily include all of the CAM requirements for the Sulfuric Acid Plant. CAM reporting may be fulfilled through recordkeeping and reporting requirements for **Conditions E5-1, E5-5, and E2(a)**.

	Indicator No. 1	**Indicator No. 2**
I. Indicator [64.6(c)(1)(i)]	Outlet (Tail Gas Stack) SO_2 Concentration	Visible emissions
Measurement Approach [64.6(c)(1)(ii)]	The SO_2 concentration is measured with a CEMS meeting 40 CFR 60 Appendix B, Performance Specifications.	A certified visible emissions inspector will evaluate visible emissions in accordance with EPA Method 9 and the Opacity Matrix.
II. Indicator Range [64.6(c)(2)]	An excursion is defined as a 2-hr average greater than 650 ppm (emission limit); excursions trigger an inspection, corrective action, and a report on the inspection and corrective action.	Visible emissions shall not exceed 20 % opacity. Visible emissions greater than 20% opacity (with due allowance for reader error) are considered deviations.
III. Performance Criteria [64.6(c)(1)(iii)]		
A. Data Representativeness [64.3(b)(1)]	The system meets 40 CFR 60 Appendix B, Performance Specification 2 criteria.	Visible emissions inspector will observe the requirements of EPA Method 9 and the Opacity Matrix.
B. Verification of Operational Status [64.3(b)(2)]	Not applicable	Visible emissions inspector will ensure that the emission unit is operational during the VEE.
C. QA/QC Practices and Criteria [64.3(b)(3)]	Calibration drift will be automatically checked every day by zero air and span gas. Quality assurance checks shall be performed on the sulfur dioxide monitoring system on a biennial calendar basis, and within ninety (90) days of each major modification or major repair of the sulfur dioxide emissions monitor, as required in **Condition E5-9**.	Visible emissions inspector will observe the requirements of EPA Method 9 and the Opacity Matrix.

	Indicator No. 1	Indicator No. 2
D. Monitoring Frequency [64.3(b)(4)]	SO_2 concentration is measured continuously.	If necessary, an initial VEE shall be conducted within a year of permit issuance. Additional VEE's shall be conducted as required by the Opacity Matrix.
Data Collection Procedure	The sulfur dioxide monitoring system records the average of live readings for one-minute. The system calculates a two-hour average using the one-minute averages during the two-hour period.	As required by EPA Method 9 and the Opacity Matrix.
Averaging Period	Two-hour averages shall be calculated from eight or more equally spaced data averages over each two-hour period, except during periods when calibration, quality assurance, or maintenance are being performed. A valid one-hour average shall consist of at least two data points with each representing a fifteen minutes time period. Hourly sulfur dioxide emission rates are not calculated if the affected facility is operated less than 30 minutes in a one-hour period.	As required by EPA Method 9 and the Opacity Matrix.

Comments:
This source was operating at the time of inspection and no excess visible emissions were observed. A continuous SO2 monitor was observed in place and operational. The SO2 CEM was reading 228 ppm at the time of inspection. According to the facility contact, calibration drift is checked daily. SO2 RATAs were conducted on September 1, 2015, and September 6, 2017. Reports of these checks are submitted to the Division's Compliance Validation Section for review. Nyrstar reports that no major modifications or repairs of the monitor were conducted during the inspection period.

E5-16. The Calcine Processing Stack (02020-00-ST), and the Calcine Storage Silos Stack (05270-00-ST) are subject to 40 CFR Part 64-Compliance Assurance Monitoring (CAM) for particulate matter. The following table summarizes, but does not necessarily include all of the CAM requirements for the baghouses on the Calcine Processing Stack (02020-00-ST), and the Calcine Storage Silos Stack (05270-00-ST) CAM reporting may be fulfilled through recordkeeping and reporting requirements for **Conditions E5-2, E5-6, and E2(a)**.

	Indicator No. 1	Indicator No. 2
I. Indicator [64.6(c)(1)(i)]	Pressure drop	Visible emissions from baghouse stacks
Measurement Approach [64.6(c)(1)(ii)]	Pressure drop across the baghouse is measured with a differential pressure gauge.	A certified visible emissions inspector will evaluate visible emissions in accordance with EPA Method 9 and the Opacity Matrix.
II. Indicator Range [64.6(c)(2)]	The minimum pressure drop value for compliance assurance has been incorporated into this permit.	Visible emissions shall not exceed 20 % opacity. Visible emissions greater than 20% opacity (with due allowance for reader error) are considered deviations; and trigger an inspection of the baghouses, corrective action, and a reporting requirement.
III. Performance Criteria [64.6(c)(1)(iii)]		
A. Data Representativeness [64.3(b)(1)]	Pressure taps are located at the baghouse inlet and outlet and have been installed by an authorized equipment representative.	Visible emissions inspector will observe the requirements of EPA Method 9 and the Opacity Matrix.

	Indicator No. 1	Indicator No. 2
B. Verification of Operational Status [64.3(b)(2)]	NA	Visible emissions inspector will ensure that the emission unit is operational during the VEE.
C. QA/QC Practices and Criteria [64.3(b)(3)]	The pressure gauge is calibrated, maintained, and operated in accordance with manufacturer's instructions.	Visible emissions inspector will observe the requirements of EPA Method 9 and the Opacity Matrix.
D. Monitoring Frequency [64.3(b)(4)]	Pressure drop is monitored continuously.	If necessary, an initial VEE shall be conducted within a year of permit issuance. Additional VEE's shall be conducted as required by the Opacity Matrix.
Data Collection Procedure	Pressure drop is manually recorded daily.	As required by EPA Method 9 and the Opacity Matrix.
Averaging Period	None	As required by EPA Method 9 and the Opacity Matrix.

Comments:
This source was operating at the time of inspection and no visible emissions were observed. Pressure drop gauges were observed in place and operational. According to the facility contact, they are calibrated, maintained, and operated in accordance with the manufacturer's specifications. Pressure drop logs were available for review as indicated at Condition E5-2.

E5-17. The Calcine Storage Silo #19 Stack (05019) is subject to 40 CFR Part 64-Compliance Assurance Monitoring (CAM) for particulate matter. The following table summarizes, but does not necessarily include all of the CAM requirements for the baghouse on the Calcine Storage Silo #19 Stack (05019). CAM reporting may be fulfilled through recordkeeping and reporting requirements for **Conditions E5-2, E5-6, and E2(a)**.

	Indicator No. 1	Indicator No. 2
I. Indicator [64.6(c)(1)(i)]	Pressure drop	Visible emissions from baghouse stacks
Measurement Approach [64.6(c)(1)(ii)]	Pressure drop across the baghouse is measured with a differential pressure gauge.	A certified visible emissions inspector will evaluate visible emissions in accordance with EPA Method 9 and the Opacity Matrix.
II. Indicator Range [64.6(c)(2)]	The minimum pressure drop value for compliance assurance has been incorporated into this permit.	Visible emissions shall not exceed 20 % opacity. Visible emissions greater than 20% opacity (with due allowance for reader error) are considered deviations; and trigger an inspection of the baghouses, corrective action, and a reporting requirement.
III. Performance Criteria [64.6(c)(1)(iii)]		
A. Data Representativeness [64.3(b)(1)]	Pressure taps are located at the baghouse inlet and outlet and have been installed by an authorized equipment representative.	Visible emissions inspector will observe the requirements of EPA Method 9 and the Opacity Matrix.
B. Verification of Operational Status [64.3(b)(2)]	NA	Visible emissions inspector will ensure that the emission unit is operational during the VEE.
C. QA/QC Practices and Criteria [64.3(b)(3)]	The pressure gauge is calibrated, maintained, and operated in accordance with manufacturer's instructions.	Visible emissions inspector will observe the requirements of EPA Method 9 and the Opacity Matrix.

	Indicator No. 1	Indicator No. 2
D. Monitoring Frequency [64.3(b)(4)]	Pressure drop is monitored continuously.	If necessary, an initial VEE shall be conducted within a year of permit issuance. Additional VEE's shall be conducted as required by the Opacity Matrix.
Data Collection Procedure	Pressure drop is manually recorded daily.	As required by EPA Method 9 and the Opacity Matrix.
Averaging Period	None	As required by EPA Method 9 and the Opacity Matrix.

Comments:
This source was operating at the time of inspection and no visible emissions were observed. Pressure drop gauges were observed in place and operational. According to the facility contact, they are calibrated, maintained, and operated in accordance with the manufacturer's specifications. Pressure drop logs were available for review as indicated at Condition E5-2.

63-0092-06	**Source Identification**	Zinc Electrolysis Emission Points: two (2) Purification Cooling Towers with particulate (as sulfuric acid mist) emissions, Cell House Building Eleven (11) Electrolyte Cooling Towers.		
Stack ID	**Location**	**Height above grade (ft)**	**Inside diameter at outlet (ft)**	**Exhaust flowrate at dry standard condition (dscfm)**
08280-00-ST	Purification Cooling Tower	82	26 x 13	128,992
08281-00-ST	Purification Cooling Tower	82	26 x 13	128,992
08001-00-ST	Electrolyte Cooling Tower	82	13.2 x 26.5	128,125
08002-00-ST	Electrolyte Cooling Tower	82	13.2 x 26.5	128,125
08003-00-ST	Electrolyte Cooling Tower	82	13.2 x 26.5	128,125
08004-00-ST	Electrolyte Cooling Tower	82	13.2 x 26.5	128,125
08005-00-ST	Electrolyte Cooling Tower	82	13.2 x 26.5	128,125
08006-00-ST	Electrolyte Cooling Tower	82	13.2 x 26.5	128,125
08007-00-ST	Electrolyte Cooling Tower	82	13.2 x 26.5	128,125
08008-00-ST	Electrolyte Cooling Tower	82	13.2 x 26.5	128,125
08009-00-ST	Electrolyte Cooling Tower	82	13.2 x 26.5	128,125
08010-00-ST	Electrolyte Cooling Tower	82	13.2 x 26.5	128,125
08011-00-ST	Electrolyte Cooling Tower	82	13.2 x 26.5	128,125

Condition E6-1thru E6-3 apply to source 63-0092-06

E6-1. Particulate matter as sulfuric acid mist emitted from the source (63-0092-06) shall not exceed a drift loss of 0.0015% and 84.95 tons during all interval of any 12 consecutive months.

TAPCR 1200-03-07-.04(1) and agreement letter dated November 1, 2001

Compliance Method: In order to maintain vendor's guarantee of 0.001% drift loss and to demonstrate compliance with the applicable particulate emission limit, the mist eliminators shall be maintained, kept in good operating condition and operated whenever this source is in use. The mist eliminators will be inspected at least once every two months, and damaged mist eliminators will be repaired or replaced. Records documenting these inspections and any necessary maintenance will be maintained for at least five years.

Comments:
Particulate matter emissions records are not required. The required records were available for review. The inspector performed a <u>full</u> review of the mist eliminator inspections for the period of November 29, 2017, to October 18, 2018. These records were considered complete.

E6-2. Visible emissions from this source (63-0092-06) shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count).

TAPCR 1200-03-05-.01

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

Comments:
This source was operating and no visible emissions were observed at the time of inspection.

E6-3. The purification cooling towers and the electrolyte cooling towers are subject to 40 CFR Part 64-Compliance Assurance Monitoring (CAM) for particulate matter. The following table summarizes, but does not necessarily include all of the CAM requirements for the low velocity mist eliminators on the purification cooling towers and the electrolyte cooling towers. CAM reporting may be fulfilled through recordkeeping and reporting requirements for **Conditions E6-1, E6-2, and E2(a)**.

	Indicator No. 1	**Indicator No. 2**
I. Indicator [64.6(c)(1)(i)]	Inspection/maintenance of the low velocity mist eliminators	Visible emissions from cooling towers
Measurement Approach [64.6(c)(1)(ii)]	Inspect at least once every other calendar month according to I/M checklist; maintenance (repair or replacement) performed as needed.	A certified visible emissions inspector will evaluate visible emissions in accordance with EPA Method 9 and the Opacity Matrix.
II. Indicator Range [64.6(c)(2)]	NA	Visible emissions shall not exceed 20 % opacity. Visible emissions greater than 20% opacity (with due allowance for reader error) are considered deviations; and trigger an inspection of the low velocity mist eliminators (before the end of the calendar month following the month with the high opacity reading), corrective action, and a reporting requirement.
III. Performance Criteria [64.6(c)(1)(iii)]		
A. Data Representativeness [64.3(b)(1)]	Inspections are performed at the cooling towers.	Visible emissions inspector will observe the requirements of EPA Method 9 and the Opacity Matrix.
B. Verification of Operational Status [64.3(b)(2)]	NA	Visible emissions inspector will ensure that the emission unit is operational during the VEE.
C. QA/QC Practices and Criteria [64.3(b)(3)]	Qualified personnel perform inspection.	Visible emissions inspector will observe the requirements of EPA Method 9 and the Opacity Matrix.

	Indicator No. 1	Indicator No. 2
D. Monitoring Frequency [64.3(b)(4)]	Inspect at least once every other calendar month.	If necessary, an initial VEE shall be conducted within a year of permit issuance. Additional VEE's shall be conducted as required by the Opacity Matrix.
Data Collection Procedure	Records are maintained to document the inspection and any required maintenance.	As required by EPA Method 9 and the Opacity Matrix.
Averaging Period	NA	As required by EPA Method 9 and the Opacity Matrix.

Comments:
This source was operating at the time of inspection and no excess visible emissions were observed. Mist eliminator inspection and maintenance records were available as indicated at Condition E6-1.

63-0092-07	**Source Identification**	Anode Cleaning & Casting with Baghouse Control. Part 63 Subpart GGGGGG			
Stack ID	**Location**	**Height above grade (ft)**	**Inside diameter at outlet (ft)**	**Exhaust flowrate at dry standard condition (dscfm)**	**Minimum Pressure Drop (inch of Water Column)**
13110-00-ST	Anode Casting Baghouse	10	2.25 x 3.25	8,169.3	0.5
13105-01-BL	Silver Lead Alloy Furnace (combustion only)	61	1.25	850	NA
13104-01-BL	Pure Lead Furnace (combustion only)	61	1	340	NA

Conditions E7-1thru E7-4 apply to source 63-0092-07

E7-1. Particulate matter emitted from the Anode Casting Baghouse (stack 13110-00-ST) shall not exceed 0.014 grains per dry standard cubic foot of exhaust gas (0.98 lb/hr).

40 CFR 63.11162(b)(4), TAPCR 1200-03-09-.01(4)(j), and PSD Requirement (12/1/76 letter from EPA)

Compliance Method: This source (63-0092-07) shall not be operated without the use of air pollution control device(s) (fabric filters), except in accordance with TAPCR 1200-03-20. Compliance with this condition shall be assured by operating the fabric filters at or higher than the minimum pressure drop corresponding to the exhaust emissions of 0.014 grains per dry standard cubic foot of exhaust gas and by the daily recording of the pressure drop across the fabric filters in Anode Casting Baghouse. A monthly log of maintenance shall indicate what maintenance and repair was done, when it was done, by whom, and when problems were rectified, showing time and date. This information shall include, but is not limited to, filter inspections, filter replacement, and time of use of the emergency/standby venting from fabric filters. A log of the operation hours when this line is operating without the baghouse system fully operating must be kept.

Compliance with this requirement shall be assured by maintaining a minimum pressure drop of 0.5 inches of water column across the fabric filters in the Anode Casting Baghouse. The pressure drop shall be recorded once daily when this source is in operation. The days when the source does not operate shall be noted. In the event that all bags are replaced simultaneously, the permittee will record in a separate log, the date complete replacement is made and record daily pressure drop across that particular baghouse until the minimum pressure drop for the baghouse is reached. Once reached, the standard recordings shall be made and a report of the time required to reach the minimum pressure drop shall be calculated. This report shall be included with that current semiannual period submittal. All logs shall be recorded in a suitable permanent form and kept available for inspection and be used to certify compliance with this condition and in the reporting requirements of E2 of this permit, and must be retained for

a period of not less than five years. The information obtained from the study shall be incorporated into this permit by administrative permit amendment to set operating parameters while the filter cake is accumulating on the new bag filter. Reports and certifications shall be submitted in accordance with Condition E2 of this permit.

Comments:
Nyrstar stopped using source -07, Anode Cleaning and Casting, in of March 2008. This operation was outsourced to a company located in Alabama as a cost saving measure. All the equipment is still in place and functional. Nyrstar wishes to keep this source on the permit in case there is a decision to move the operation back.

E7-2. Particulate matter emitted from the 3.89 MMBtu/hr Silver Lead Alloy Furnace (13105-01-BL) and the Pure Lead Furnace (13104-01-BL) shall not exceed 0.6 pound per million Btu (2.33 lb/hr).

TAPCR 1200-03-06-.02(2)

Compliance Method: The potential to emit particulate matter from this source is less than five tons per year. In accordance with TAPCR 1200-03-09-.04(5)(c)3. and by annual certification of compliance, the permittee shall be considered to meet the monitoring and related recordkeeping and reporting requirements of TAPCR 1200-03-09-.02(11)(e)3.(i). The permittee shall submit annually a compliance certification for particulate matter from source (63-0092-07 for fuel combustion).

Comments:
Particulate matter emissions records are not required. The facility certified compliance with this condition its latest ACC. This source has not operated since March 2008.

E7-3. Visible emissions from this source (63-0092-07) shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count).

TAPCR 1200-03-05-.01

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

Comments:
This source has not operated since March 2008.

E7-4. Only propane shall be used as fuel for this source.

Comments:
For information only. This source has not operated since March 2008.

63-0092-08	**Source Identification**	Zinc Melting and Casting Operations and Zinc Dust Plant Points			
Stack ID	**Location**	**Height above grade (ft)**	**Inside diameter at outlet (ft)**	**Exhaust flowrate at dry standard condition (dscfm)**	**Minimum Pressure Drop (inch of**

					Water Column)
09400-00-ST	Zinc Melting Furnace Baghouse (8-2)	50	3	15,600	4.5
10032-00-ST	Zinc Dust Atomization Baghouse (8-3)	60	3	12,780	0.5
10033-00-ST	Zinc Dust Screening Baghouse (8-4)	60	2	3,312	0.5

Condition E8-1thru E8-6 apply to source 63-0092-08

E8-1. Particulate matter emitted from the Zinc Melting Furnace Baghouse (stack 09400-00-ST) shall not exceed 0.005 grains per dry standard cubic foot of exhaust gas (0.67 lb/hr).

40 CFR 63-11162(b)(6), APCR 1200-03-09-.01(4)(j), and PSD Requirement (12/1/76 letter from EPA)

Compliance Method: This source (63-0092-08) shall not be operated without the use of air pollution control device(s) (fabric filters), except in accordance with TAPCR 1200-03-20. Compliance with this condition shall be assured by operating the fabric filters at or higher than the minimum pressure drops corresponding to the exhaust emissions of 0.005 grains per dry standard cubic foot of exhaust gas and the daily recording of the pressure drop across the fabric filters in Zinc Melting Furnace Baghouse. A monthly log of maintenance shall indicate what maintenance and repair was done, when it was done, by whom, and when problems were rectified, showing time and date. This information shall include, but is not limited to, filter inspections, filter replacement, and time of use of the emergency/standby venting from fabric filters. A log of the operation hours when this line is operating without the baghouse system fully operating must be kept.

Compliance with this requirement shall be assured by maintaining a minimum pressure drop of 4.5 inches of water column across the fabric filters in Zinc Melting Furnace Baghouse. The pressure drop shall be recorded once daily when this source is in operation. The days when the source does not operate shall be noted. In the event that all bags are replaced simultaneously, the permittee will record in a separate log, the date complete replacement is made and record daily pressure drop across that particular baghouse until the minimum pressure drop for the baghouse is reached. Once reached, the standard recordings shall be made and a report of the time required to reach the minimum pressure drop shall be calculated. This report shall be included with that current semiannual period submittal. All logs shall be recorded in a suitable permanent form and kept available for inspection and be used to certify compliance with this condition and in the reporting requirements of E2 of this permit, and must be retained for a period of not less than five years. The information obtained from the study shall be incorporated into this permit by administrative permit amendment to set operating parameters while the filter cake is accumulating on the new bag filter. Reports and certifications shall be submitted in accordance with Condition E2 of this permit.

Comments:

Particulate matter emissions records are not required. The required maintenance records were available for the time period of November 29, 2017, to October 18, 2018. The inspector performed a spot check due to volume for the time period of July 1, 2018, to August 30, 2018. These records were considered complete.

Pressure drop records were available for review. The inspector performed a full review of the records for the time period of November 29, 2017, to October 18, 2018. A pressure drop reading was recorded at levels below the allowable minimum of 4.5 inches of water on May 29, 2018. Nyrstar reports that low reading was caused by over-cleaning (pulsing) of the baghouse. This excursion did not rise to the level of NOV.

Pressure drop readings taken at the time of inspection were as follows:

Baghouse:		Pressure Drop "H2O:
09400-00-ST	**Zinc Melting Furnace Baghouse (8-2)**	**8.0**

E8-2. Particulate matter emitted from the Zinc Dust Atomization Baghouse (stack 10032-00-ST) shall not exceed 0.042 grains per dry standard cubic foot of exhaust gas (4.60 lb/hr).

TAPCR 1200-03-09-.01(4)(j), and PSD Requirement (12/1/76 letter from EPA)

Compliance Method: This source (63-0092-08) shall not be operated without the use of air pollution control device(s) (fabric filters), except in accordance with TAPCR 1200-03-20. Compliance with this condition shall be assured by maintaining a minimum pressure drop across the fabric filter of 0.5 inches of water column, and the daily recording of the pressure drop across the fabric filters in Zinc Dust Atomization Baghouse. A monthly log of maintenance shall indicate what maintenance and repair was done, when it was done, by whom, and when problems were rectified, showing time and date. This information shall include, but is not limited to, filter inspections, filter replacement, days of operation, and time of use of the emergency/standby venting from fabric filters. A log of the operation hours when this line is operating without the baghouse system fully operating must be kept.

In the event that all bags are replaced simultaneously, the permittee will record in a separate log, the date complete replacement is made and record daily pressure drop across that particular baghouse until the minimum pressure drop for the baghouse is reached. Once reached, the standard recordings shall be made and a report of the time required to reach the minimum pressure drop shall be calculated. This report shall be included with that current semiannual period submittal. All logs shall be recorded in a suitable permanent form and kept available for inspection and be used to certify compliance with this condition and in the reporting requirements of E2 of this permit, and must be retained for a period of not less than five years. The information obtained from the study shall be incorporated into this permit by administrative permit amendment to set operating parameters while the filter cake is accumulating on the new bag filter. Reports and certifications shall be submitted in accordance with Condition E2 of this permit.

Comments:

Particulate matter emissions records are not required. The required maintenance records were available for the time period of November 29, 2017, to October 18, 2018. The inspector performed a spot check due to volume for the time period of July 1, 2018, to August 30, 2018. These records were considered complete.

Pressure drop records were available for review. The inspector performed a full review of the records for the time period of November 29, 2017, to October 18, 2018. No excursions were noted.

Pressure drop readings taken at the time of inspection were as follows:

Baghouse:		Pressure Drop "H2O:
10032-00-ST	Zinc Dust Atomization Baghouse (8-3)	4.0, 5.0, 6.0

E8-3. Particulate matter emitted from the Zinc Dust Screening Baghouse (stack 10033-00-ST) shall not exceed 0.02 grains per dry standard cubic foot of exhaust gas (0.57 lb/hr).

TAPCR 1200-03-09-.01(4)(j) and PSD Requirement (12/1/76 letter from EPA)

Compliance Method: This source (63-0092-08) shall not be operated without the use of air pollution control device(s) (fabric filters), except in accordance with TAPCR 1200-03-20. Compliance with this condition shall be assured by maintaining a minimum pressure drop across the fabric filter of 0.5 inches of water column, and the daily recording of the pressure drop across the fabric filters in the Zinc Dust Screening Baghouse. A monthly log of maintenance shall indicate what maintenance and repair was done, when it was done, by whom, and when

problems were rectified, showing time and date. This information shall include, but is not limited to, filter inspections, filter replacement, days of operation, and time of use of the emergency/standby venting from fabric filters. A log of the operation hours when this line is operating without the baghouse system fully operating must be kept.

In the event that all bags are replaced simultaneously, the permittee will record in a separate log, the date complete replacement is made and record daily pressure drop across that particular baghouse until the minimum pressure drop for the baghouse is reached. Once reached, the standard recordings shall be made and a report of the time required to reach the minimum pressure drop shall be calculated. This report shall be included with that current semiannual period submittal. All logs shall be recorded in a suitable permanent form and kept available for inspection and be used to certify compliance with this condition and in the reporting requirements of E2 of this permit, and must be retained for a period of not less than five years. The information obtained from the study shall be incorporated into this permit by administrative permit amendment to set operating parameters while the filter cake is accumulating on the new bag filter. Reports and certifications shall be submitted in accordance with Condition E2 of this permit.

Comments:
Particulate matter emissions records are not required. The required maintenance records were available for the time period of November 29, 2017, to October 18, 2018. The inspector performed a spot check due to volume for the time period of July 1, 2018, to August 30, 2018. These records were considered complete.

Pressure drop records were available for review. The inspector performed a full review of the records for the time period of November 29, 2017, to October 18, 2018. No excursions were noted.

Pressure drop readings taken at the time of inspection were as follows:

Baghouse:		Pressure Drop:
10033-00-ST	Zinc Dust Screening Baghouse (8-4)	1.0, 0.8

E8-4. Any pneumatic conveyance of zinc dust shall have conveying air vented to a baghouse.

Permit 017460P, Condition 4

Comments:
According to the facility contact, conveying air is vented to the baghouse. No fugitive emissions were observed at the time of inspection.

E8-5. Visible emissions from this source (63-0092-08) shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count).

TAPCR 1200-03-05-.01

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

Comments:

This source was operating and no visible emissions were observed at the time of inspection.

E8-6. The Zinc Dust Atomization Baghouse (stack 10032-00-ST), and the Zinc Dust Screening Baghouse (stack 10033-00-ST) are subject to 40 CFR Part 64-Compliance Assurance Monitoring (CAM) for particulate matter. The following table summarizes, but does not necessarily include all of the CAM requirements for the baghouses on the Zinc Dust Atomization Baghouse (stack 10032-00-ST), and the Zinc Dust Screening Baghouse (stack 10033-00-ST). CAM reporting may be fulfilled through recordkeeping and reporting requirements for **Conditions E8-2, E8-3, E8-5, and E2(a)**.

	Indicator No. 1	Indicator No. 2
I. Indicator [64.6(c)(1)(i)]	Pressure drop	Visible emissions from baghouse stacks
Measurement Approach [64.6(c)(1)(ii)]	Pressure drop across the baghouse is measured with a differential pressure gauge.	A certified visible emissions inspector will evaluate visible emissions in accordance with EPA Method 9 and the Opacity Matrix.
II. Indicator Range [64.6(c)(2)]	The minimum pressure drop value for compliance assurance has been incorporated into this permit.	Visible emissions shall not exceed 20 % opacity. Visible emissions greater than 20% opacity (with due allowance for reader error) are considered deviations; and trigger an inspection of the baghouses, corrective action, and a reporting requirement.
III. Performance Criteria [64.6(c)(1)(iii)]		
A. Data Representativeness [64.3(b)(1)]	Pressure taps are located at the baghouse inlet and outlet and have been installed by an authorized equipment representative.	Visible emissions inspector will observe the requirements of EPA Method 9 and the Opacity Matrix.
B. Verification of Operational Status [64.3(b)(2)]	NA	Visible emissions inspector will ensure that the emission unit is operational during the VEE.
C. QA/QC Practices and Criteria [64.3(b)(3)]	The pressure gauge is calibrated, maintained, and operated in accordance with manufacturer's instructions.	Visible emissions inspector will observe the requirements of EPA Method 9 and the Opacity Matrix.
D. Monitoring Frequency [64.3(b)(4)]	Pressure drop is monitored continuously.	If necessary, an initial VEE shall be conducted within a year of permit issuance. Additional VEE's shall be conducted as required by the Opacity Matrix.
Data Collection Procedure	Pressure drop is manually recorded daily.	As required by EPA Method 9 and the Opacity Matrix.
Averaging Period	None	As required by EPA Method 9 and the Opacity Matrix.

Comments:
This source was operating at the time of inspection and no visible emissions were observed. Pressure drop gauges were observed in place and operational. According to the facility contact, they are calibrated, maintained, and operated in accordance with the manufacturer's specifications. Pressure drop logs were available for review as indicated at Condition E8-2 and E8-3.

63-0092-09	Source Identification	Dross Handling Operations Emission Points: Dross Handling Baghouse, Dross Building. Part 63 Subpart GGGGGG			
Stack ID	**Location**	**Height above grade (ft)**	**Inside diameter at outlet (ft)**	**Exhaust flowrate at dry standard condition (dscfm)**	**Minimum Pressure Drop (inch of Water**

					Column)
11008-00-ST	Dross Handling and Zinc Dust Furnace Baghouse	60	1	16,560	3.0

Condition E9-1 thru E9-3 apply to source 63-0092-09

E9-1. Particulate matter emitted from this source shall not exceed 0.005 grains per dry standard cubic foot of exhaust gas (0.7. lb/hr).

TAPCR 1200-03-09-.01(4)(j), 40 CFR 63.11162(b)(6), and PSD Requirement (12/1/76 letter from EPA)

Compliance Method: This source (63-0092-09) shall not be operated without the use of air pollution control device(s) (fabric filters), except in accordance with TAPCR 1200-03-20. Compliance with this condition shall be assured by installing and operating a bag leak detection system in accordance with the requirements described in 40 CFR 63.11163(d) and the site-specific monitoring plan that is to be developed per 40 CFR 63.11163(d)(2).

Compliance with this requirement shall be assured by installing and operating a bag leak detection system on the Dross Handling and Zinc Dust Furnace Baghouse. A site-specific monitoring plan for the bag leak detection system will be developed and submitted to the Technical Secretary. The bag leak detection system will be operated and maintained according to the site-specific monitoring plan at all times. The monitoring plan will address the following items: 1) Installation of the bag leak detection system; 2) Initial and periodic adjustment of the bag leak detection system, including how the alarm set-point will be established; 3) Operation of the bag leak detection system, including quality assurance procedures; 4) How the bag leak detection system will be maintained, including a routine maintenance schedule and spare parts inventory list; 5) How the bag leak detection system output will be recorded and stored; and 6) Corrective action procedures. The days when the source does not operate shall be noted. Additionally, records of the following information for the bag leak detection system will be maintained: 1) Records of the bag leak detection system output; 2) Records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings; and 3) The date and time of all bag leak detection system alarms, the time that procedures to determine the cause of the alarm were initiated, if procedures were initiated within 1 hour of the alarm, the cause of the alarm, an explanation of the actions taken, the date and time the cause of the alarm was alleviated, and if the alarm was alleviated within 3 hours of the alarm. All records shall be recorded in a suitable permanent form and kept available for inspection and be used to certify compliance with this condition and in the reporting requirements of E2 of this permit, and must be retained for a period of not less than five years. Reports and certifications shall be submitted in accordance with Condition E2 of this permit.

Comments:

Particulate matter emissions records are not required. Nyrstar demonstrates compliance by following its site specific monitoring plan for its bag leak detection system. Bag leak detection system records were available for review for the time period of November 29, 2017, to October 18, 2018. The inspector performed a spot check due to volume for the time period of July 1, 2018, to August 30, 2018. These records were considered complete.

Pressure drop readings taken at the time of inspection were as follows:

Baghouse:		Pressure Drop "H2O:
11008-00-ST	**Dross Handling and Zinc Dust Furnace Baghouse**	**5.5**

The bag leak detection system was operable at the time of inspection.

E9-2. Dumpsters shall be covered during dross transport.

Permit 017461P, Condition 3

Comments:
According to the facility contact, all dross dumpsters are covered while being transported. No uncovered dumpsters were observed at the time of inspection.

E9-3. Visible emissions from this source (63-0092-09) shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count).

TAPCR 1200-03-05-.01

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

Comments:
This source was operating at the time of inspection and no visible emissions were observed.

63-0092-11	**Source Identification**	Cadmium Melting & Casting Furnace, Liquid Propane Fuel, Baghouse Control & Dross Chute Duct. Part 63 Subpart GGGGGG		
Stack ID	**Location**	**Height above grade (ft)**	**Inside diameter at outlet (ft)**	**Exhaust flowrate at dry standard condition (dscfm)**
14176-00-ST	Cadmium Melt Furnace	54	1.4	3655.2

Condition E10-1 (MM1) and E10-2 apply to source 63-0092-11

E10-1(MM1). This source (cadmium Melt furnace) is subject to the requirements of 40 CFR Part 63 Subpart GGGGGG (National Emission Standards for Hazardous Air Pollutants for Primary Nonferrous metals *Area Sources* – Zinc, Cadmium, and Beryllium; 40 CFR §63.11163). The requirements are included as Attachment 4 of this permit and as Attachment #1 (in minor modification #1 permit).

Comments:
For information only.

E10-2(MM1). Particulate matter emitted from this source shall not exceed 0.015 grains per dry standard cubic foot of exhaust gas (0.51 lb/hr).

TAPCR 1200-03-09-.01(4)(j); PSD Requirement (12/1/76 letter from EPA) and 40 CFR Part 63 Subpart GGGGGG (§63.11162(b)(5))

Compliance Method: This source (63-0092-11) shall not be operated without the use of air pollution control device(s) (fabric filters), except in accordance with TAPCR 1200-3-20. Compliance with this condition shall be assured by installing and operating a bag leak detection system in accordance with the requirements as described in 40 CFR 63.11163(d) and the site-specific monitoring plan that is to be developed per 40 CFR 63.11163(d)(2).

Compliance with this requirement shall be assured by installing and operating a bag leak detection system on the Cadmium Melt Furnace Baghouse. A site-specific monitoring plan for the bag leak detection system will be developed and submitted to the Technical Secretary. The monitoring plan will address the following items:

1) Installation of the bag leak detection system; 2) Initial and periodic adjustment of the bag leak detection system, including how the alarm set-point will be established; 3) Operation of the bag leak detection system, including quality assurance procedures; 4) How the bag leak detection system will be maintained, including a routine maintenance schedule and spare parts inventory list; 5) How the bag leak detection system output will be recorded and stored; and 6) Corrective action procedures.

The days when the source does not operate shall be noted. Additionally, records of the following information for the bag leak detection system will be maintained:

1) Records of the bag leak detection system output; 2) Records of the bag leak detection system adjustments, including the date and time of adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings; and 3) The date and time of all bag leak detection system alarms, the time that procedures to determine the cause of the alarm were initiated, if procedures were initiated within 1 hour of the alarm, the cause of the alarm, an explanation of the action taken, the date and time the cause of the alarm was alleviated, and if the alarm was alleviated within 3 hours of the alarm. The bag leak detection system will be operated and maintained according to the site-specific monitoring plan at all times. All records shall be recorded in a suitable permanent form, kept available for inspection, and must be retained for a period of not less than five years. Reports and certifications shall be submitted in accordance with E-2 of this permit.

Particulate matter emissions records are not required. Nyrstar demonstrates compliance by following its site specific monitoring plan for its bag leak detection system. Bag leak detection system records were available for review for the time period of November 29, 2017, to October 18, 2018. The inspector performed a spot check due to volume for the time period of July 1, 2018, to August 30, 2018. These records were considered complete.

Pressure drop readings taken at the time of inspection were as follows:

Baghouse:		Pressure Drop "H2O:
14176-00-ST	Cadmium Melt Furnace	6.0

The bag leak detection system was operable at the time of inspection.

E10-3. Visible emissions from this source (63-0092-11) shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count).

TAPCR 1200-03-05-.01

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

Comments:

This source was operating at the time of inspection and no visible emissions were observed.

63-0092-12	**Source Identification**	Auxiliary Boiler and Roaster Preheater (80 MM Btu per hour Total), No. 2 Fuel Oil Fired. The roaster preheater will not operate while the acid plant in 63-0092-03 is operating. Part 63 Subpart JJJJJJ

Condition E11-1 thru E11-14 apply to source 63-0092-12

E11-1. Visible emissions from this source (63-0092-12) shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count).

TAPCR 1200-03-05-.01

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

Comments:
This source was operating at the time of inspection and no visible emissions were observed.

E11-2. Operating time for Auxiliary Boiler and Roaster Preheater shall not exceed the limit set in the following table:

Agreement letter dated October 11, 2001 and the Significant Modification application dated December 14, 2006

Compliance Method: A log of the operating hours, in a form that readily shows compliance with this condition, must be maintained at the source location and kept available for inspection by the Technical Secretary or his representative. This log must be maintained for a period of not less than five years. All data must be entered in the log no later than 7 days from the end of the day for which the data is required.

Daily Operating Time log, Source 63-0092-12

Equipment	**Auxiliary Boiler**		**Roaster Preheater**	
Limit	**2500 hours***		**480 hours***	
Date	**Daily Hours of Operation (hours/day)**	**Cumulative Total Hours of Operation (hours)**	**Daily Hours of Operation (hours/day)**	**Cumulative Total Hours of Operation (hours)**

***** during all intervals of 12 consecutive months

Comments:
The inspector performed a <u>full</u> review of the required records for the time period of November 29, 2017, to October 18, 2018. Additionally, the logs for the entire month of October 2018 were received via email on November 5, 2018. Exceedances of the hours of operation limits were noted as detailed below:

***Auxiliary Rental Boiler Exceedances (Max 12 consecutive month total hours of operation):**
1,031 May 2018, 1,060 June 2018, 1,013 July 2018, 1,050 August 2018, 1,530 September 2018, 1,628 October 2018

Roaster Preheater Exceedances(12 consecutive month total hours of operation):
480.5 April 2018, 540.5 May 2018, 529.5 June 2018, 529.5 July 2018, 564.3 August 2018, 586.8 September 2018, 643.3 October 2018

The exceedances occurring prior to July 2018 were reported in the SAR received on August 29, 2018. The Division responded with a NOV dated September 7, 2018, and consequent Order #APC18-0184 was issued on November 6, 2018. A construction permit application for an increase in the allowable hours was received on August 14, 2018. Therefore, the NOV required no further action. The exceedances occurring after June 2018 were noted during this inspection and by additional information received via email on November 5, 2018. An additional NOV was issued on November 14, 2018, at the request of Enforcement. The additional exceedances will be addressed by a separate order.

E11-3. Only no. 2 oil, with maximum sulfur content of 0.5 % by weight, shall be used for this source.

Comments:
Facility records indicated that only ultra-low sulfur (ULS) diesel fuel is combusted by this source. Specifically, an invoice dated September 27, 2018, from Hollingsworth Oil indicated that only ULS fuel is delivered to the facility.

E11-4. Particulate matter emitted from this source shall not exceed the following:

Source	Heat Input Value (MMBtu/hr)	PM limitation(lb/MMBtu)	lb/hr
Auxiliary Boiler	45	0.26	11.7
Roaster Preheater	35	0.30	10.5

TAPCR 1200-03-06-.02(2)(a)

Compliance Method: Compliance with this condition will be achieved through compliance with Condition E11-3. By annual certification of compliance, the permittee shall be considered to meet the monitoring and related recordkeeping and reporting requirements of TAPCR 1200-03-09-.02(11) (e)1.(iii) and 1200-03-10-.04(2)(b)1 and the compliance requirements of TAPCR 1200-03-09-.02(11)(e)3.(i). The permittee shall submit compliance certification for this source annually.

Comments:
Facility records indicated that only ultra-low sulfur diesel fuel is combusted by this source. The facility certified compliance with this condition in its latest ACC.

E11-5. Sulfur dioxide emitted from this source shall not exceed 5 pounds per MMBtu.

TAPCR 1200-03-14-.02(2)(a)

Compliance Method: Compliance with this condition will be achieved through compliance with Condition E11-3. By annual certification of compliance, the permittee shall be considered to meet the monitoring and related recordkeeping and reporting requirements of TAPCR 1200-03-09-.02(11) (e)1.(iii) and 1200-03-10-.04(2)(b)1 and the compliance requirements of TAPCR 1200-03-09-.02(11)(e)3.(i). The permittee shall submit compliance certification for this source annually.

Comments:
Facility records indicated that only ultra-low sulfur diesel fuel is combusted by this source. The facility certified compliance with this condition in its latest ACC.

E11-6. For fee purposes, the maximum actual emissions for NO_x have been determined to be 11.43 pounds per hour and 9.2 tons for all intervals of twelve (12) consecutive months.

TAPCR 1200-03-26-.02(2)(d)3

Comments:
For information only.

E11-7. The maximum actual emissions for Carbon Monoxide (CO) have been determined to be 2.86 pounds per hour and 2.3 tons for all intervals of twelve (12) consecutive months.

TAPCR 1200-03-06-.03(2)

Comments:
For information only.

E11-8. This condition addresses applicability to 40 CFR 63, Subpart JJJJJJ. 63-0092 is considered an area source of HAP emissions. Pursuant to 40 CFR §63.11194(a)(1), the auxiliary boiler is considered to be an existing affected source in the oil subcategory. In order to comply with 40 CFR 63, Subpart JJJJJJ, the boiler must comply with **Conditions E11-9 through E11-14** of this permit.

Comments:
For information only.

E11-9. The permittee shall comply with this condition no later than March 21, 2012 pursuant to 40 CFR §63.11196(a)(1). Pursuant to 40 CFR §63.11201(b), the permittee shall conduct a tune-up of the auxiliary boiler biennially as specified in §63.11223. Each biennial tune-up must be conducted no more than 25 months after the previous tune-up. The tune-up must include:

(a) As applicable, inspect the burners, and clean or replace any components of the burners as necessary (the permittee may delay the burner inspection until the next scheduled unit shutdown, but the permittee must inspect each burner at least once every 36 months).
(b) Inspect the flame pattern, as applicable, and adjust the burners as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available.
(c) Inspect the systems controlling the air-to-fuel ratio, as applicable, and ensure that they are correctly calibrated and functioning properly.
(d) Optimize total emissions of carbon monoxide. This optimization should be consistent with the manufacturer's specifications, if available.
(e) Measure the concentrations in the effluent stream of carbon monoxide in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made).
(f) Maintain onsite and submit, if requested by the Technical Secretary, biennial report containing the information in paragraphs (i) through (iii) of this condition.
    (i) The concentrations of CO in the effluent stream in parts per million, by volume, and oxygen in volume percent, measured before and after the tune-up of the boiler.
    (ii) A description of any corrective actions taken as a part of the tune-up of the boiler.
    (iii) The type and amount of fuel used over the 12 months prior to the biennial tune-up of the boiler.
(g) If the units are not operating on the required date for a tune-up, the tune-up must be conducted within one week of startup.

Comments:
A tune-up was done on February 24, 2014; therefore, the next tune-up should have been done prior to March 24, 2016. However, the tune-up could not be completed due to the poor condition of the boiler. A NOV letter was issued on August 26, 2016. This boiler was replaced with a rental unit, which is permitted by Construction Permit #972072P.

E11-10. The permittee shall comply with this condition no later than March 21, 2014 pursuant to 40 CFR §63.11196(a)(3). Pursuant to 40 CFR §63.11201(b), the auxiliary boiler must have a one-time energy assessment performed by a qualified energy assessor. An energy assessment completed on or after January 1, 2008, that meets or is amended to meet the energy assessment requirements in this condition satisfies the energy assessment requirement. The energy assessment must include:

(a) A visual inspection of the boiler system.
(b) An evaluation of operating characteristics of the facility, specifications of energy using systems, operating and maintenance procedures, and unusual operating constraints,
(c) Inventory of major systems consuming energy from affected boiler(s),
(d) A review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage,
(e) A list of major energy conservation measures,
(f) A list of the energy savings potential of the energy conservation measures identified,
(g) A comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments

Comments:
The field work of the assessment was done on October 11, 2013, and the report was dated March 17, 2014.

E11-11. Pursuant to 40 CFR §63.11205, at all times the permittee must operate and maintain the auxiliary boiler, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the permittee to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Technical Secretary that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

Comments:
For information only.

E11-12. Pursuant to 40 CFR §63.11225(a)(2) and §63.9(b)(2), the permittee must submit an Initial Notification to the Technical Secretary for the auxiliary boiler no later than September 17, 2011.

Comments:
An initial notification was submitted on August 18, 2011.

E11-13. Pursuant to 40 CFR §63.11225(a)(4) and §63.9(h), the permittee must submit a Notification of Compliance Status to the Technical Secretary for the auxiliary boiler no later than 120 days after the applicable compliance date specified in **Conditions E11-9 and E11-10**. In addition to the information required in 40 CFR §63.9(h)(2), the notification must include the following certification(s) of compliance, as applicable, and signed by a responsible official:

(i) "This facility complies with the requirements in 40 CFR §63.11214 to conduct an initial tune-up of the boiler."
(ii) "This facility has had an energy assessment performed according to 40 CFR §63.11214(c)."

Comments:
A notification of compliance status was submitted on June 11, 2012.

E11-14. Pursuant to 40 CFR §63.11225(c), the permittee must maintain the records specified in paragraphs(a) through (d) of this condition for the auxiliary boiler.

(a) As required in 40 CFR §63.10(b)(2)(xiv), the permittee must keep a copy of each notification and report that was submitted to comply with 40 CFR 63, subpart JJJJJJ and all documentation supporting any Initial Notification or Notification of Compliance Status that was submitted.
(b) The permittee must keep records to document conformance with the work practices, emission reduction measures, and management practices required by 40 CFR §63.11214 as specified in paragraphs (i) and (ii) of this condition.

(i) Records must identify each boiler, the date of tune-up, the procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned.

(ii) Records documenting the fuel type(s) used monthly by each boiler, including, but not limited to, a description of the fuel, including whether the fuel has received a non-waste determination by you or EPA, and the total fuel usage amount with units of measure. If the permittee combusts non-hazardous secondary materials that have been determined not to be solid waste pursuant to 40 CFR §241.3(b)(1), the permittee must keep a record which documents how the secondary material meets each of the legitimacy criteria. If the permittee combusts a fuel that has been processed from a discarded non-hazardous secondary material pursuant to 40 CFR §241.3(b)(2), the permittee must keep records as to how the operations that produced the fuel satisfies the definition of processing in 40 CFR §241.2. If the fuel received a non-waste determination pursuant to the petition process submitted under 40 CFR §241.3(c), the permittee must keep a record that documents how the fuel satisfies the requirements of the petition process.

(c) Records of the occurrence and duration of each malfunction of the boiler, or of the associated air pollution control and monitoring equipment.

(d) Records of actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions in 40 CFRR §63.11205(a), including corrective actions to restore the malfunctioning boiler, air pollution control, or monitoring equipment to its normal or usual manner of operation.

Comments:

Subpart JJJJJJ records were available for review. As previously stated, the auxiliary boiler was shutdown in November 2016. Please see Condition E11-13 of Construction Permit Number 972072P below for a list of records that were examined for the current Rental Auxiliary Boiler.

63-0092-14	**Source Identification**	Lime and Limestone Unloading and Storage Two (2) Bulk Material Silos with Baghouse Control One (1) Limestone Feed Hoppers with Baghouse Control		
Stack ID	**Location**	**Height above grade (ft)**	**Inside diameter at outlet (ft)**	**Exhaust flowrate at dry standard condition (dscfm)**
15500-00-ST	Lime Storage Silo Baghouse	70	.92	1,860
15901-02-ST	Limestone Feed Hopper Baghouse	44	.5	550
15812-00-DT	Limestone Storage Silo Baghouse	58	.75	1,300

Condition E12-1thru E12- 5 apply to source 63-0092-14

E12-1. Particulate matter emitted from the Lime Storage Silo Baghouse (stack 15500-00-ST) shall not exceed 0.015 grains per dry standard cubic foot of exhaust gas (0.24 lb/hr).

TAPCR 1200-03-09-.01(4)(j) and PSD Requirement (12/1/76 letter from EPA)

Compliance Method: Compliance with the particulate emission limitation shall be assured by proper maintenance of each baghouse. A monthly log of maintenance at each baghouse shall indicate what maintenance and repair was done, when it was done, by whom, and when problems were rectified, showing time and date. This information shall include, but is not limited to, filter inspections, filter replacement, and time of use of the emergency/standby venting from the baghouse. A log of the operation hours when this source is operating without the baghouse system fully operating must be kept. These logs shall be retained for a period of not less than 5 years. Monthly log entries shall be reported semiannually and annually in accordance with Condition E2.

Comments:

Particulate matter emissions records are not required. The required maintenance records were available for the time period of November 29, 2017, to October 18, 2018. The inspector performed a spot check due to volume for the time period of July 1, 2018, to August 30, 2018. These records were considered complete.

E12-2. Particulate matter emitted from the Limestone Feed Hopper Baghouse (stack 15901-02-ST) shall not exceed 0.25 grains per dry standard cubic foot of exhaust gas (1.18 lb/hr) and 2.5 tons per year.

TAPCR 1200-03-07-.01(5) and Permit 993067P

Compliance Method: Compliance with the particulate emission limitation shall be assured by proper maintenance of the baghouse. A monthly log of maintenance shall indicate what maintenance and repair was done, when it was done, by whom, and when problems were rectified, showing time and date. This information shall include, but is not limited to, filter inspections, filter replacement, and time of use of the emergency/standby venting from fabric filters. A log of the operation hours when this source is operating without the baghouse system fully operating must be kept. These logs shall be retained for a period of not less than 5 years. Monthly log entries shall be reported semiannually and annually in accordance with Condition E2.

Comments:
Particulate matter emissions records are not required. The required maintenance records were available for the time period of November 29, 2017, to October 18, 2018. The inspector performed a spot check due to volume for the time period of July 1, 2018, to August 30, 2018. These records were considered complete.

E12-3. Particulate matter emitted from the Limestone Storage Silo Baghouse (stack 15812-00-ST) shall not exceed 0.25 grains per dry standard cubic foot of exhaust gas (2.79 lb/hr) and is not to exceed 2.5 tons per year.

TAPCR 1200-03-07-.01(5) and Permit 993068P

Compliance Method: Compliance with the particulate emission limitation shall be assured by proper maintenance of the baghouse. A monthly log of maintenance shall indicate what maintenance and repair was done, when it was done, by whom, and when problems were rectified, showing time and date. This information shall include, but is not limited to, filter inspections, filter replacement, and time of use of the emergency/standby venting from fabric filters. A log of the operation hours when this source is operating without the baghouse system fully operating must be kept. These logs shall be retained for a period of not less than 5 years. Monthly log entries shall be reported semiannually and annually in accordance with Condition E2.

Comments:
Particulate matter emissions records are not required. The required maintenance records were available for the time period of November 29, 2017, to October 18, 2018. The inspector performed a spot check due to volume for the time period of July 1, 2018, to August 30, 2018. These records were considered complete.

E12-4. Visible emissions from this source (63-0092-14) shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count).

TAPCR 1200-03-05-.01

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

Comments:
This source was in operation at the time of inspection and no visible emissions were observed.

E12-5. The Lime Storage Silo Baghouse (stack 15500-00-ST), the Limestone Feed Hopper Baghouse (stack 15301-02-ST), and the Limestone Storage Silo Baghouse (stack 15812-00-ST) are subject to 40 CFR Part 64-Compliance Assurance Monitoring (CAM) for particulate matter. The following table summarizes, but does not necessarily include all of the CAM requirements for the Lime Storage Silo Baghouse (stack 15500-00-ST), the Limestone Feed Hopper Baghouse (stack 15301-02-ST), and the Limestone Storage Silo Baghouse (stack 15812-00-ST). CAM reporting may be fulfilled through recordkeeping and reporting requirements for **Conditions E12-1 through E12-3, and E2**.

	Indicator No. 1	**Indicator No. 2**
I. Indicator [64.6(c)(1)(i)]	Inspection/maintenance	Visible emissions
Measurement Approach [64.6(c)(1)(ii)]	Daily inspection according to I/M checklist; maintenance performed as needed.	A certified visible emissions inspector will evaluate visible emissions in accordance with EPA Method 9 and the Opacity Matrix.
II. Indicator Range [64.6(c)(2)]	NA	Visible emissions shall not exceed 20 % opacity. Visible emissions greater than 20% opacity (with due allowance for reader error) are considered deviations.
III. Performance Criteria [64.6(c)(1)(iii)]	Inspections are performed at the baghouse.	Visible emissions inspector will observe the requirements of EPA Method 9 and the Opacity Matrix.
A. Data Representativeness [64.3(b)(1)]		
B. Verification of Operational Status [64.3(b)(2)]	NA	Visible emissions inspector will ensure that the emission unit is operational during the VEE.
C. QA/QC Practices and Criteria [64.3(b)(3)]	Qualified personnel perform inspection.	Visible emissions inspector will observe the requirements of EPA Method 9 and the Opacity Matrix.
D. Monitoring Frequency [64.3(b)(4)]	Daily inspection.	If necessary, an initial VEE shall be conducted within a year of permit issuance. Additional VEE's shall be conducted as required by the Opacity Matrix.
Data Collection Procedure	Records are maintained to document the daily inspection and any required maintenance.	As required by EPA Method 9 and the Opacity Matrix.
Averaging Period	NA	As required by EPA Method 9 and the Opacity Matrix.

Comments:
This source was operating at the time of inspection and no excess visible emissions were observed. Maintenance records were available for review as indicated at Conditions E12-1, 2, and 3.

63-0092-20	**Source Identification**	Scrap Zinc Electric Induction Melting Furnace and Alloy Furnace with Baghouse Control			
Stack ID	**Location**	**Height**	**Inside**	**Exhaust flowrate at**	**Minimum Pressure Drop**

		above grade (ft)	diameter at outlet (ft)	dry standard condition (dscfm)	(inch of Water Column)
09870-00-ST	Scrap Zinc Electric Furnace and Alloy Furnace with Baghouse	51	3	17,493	2.0

Condition E13-1 thru E13-3 apply to source 63-0092-20

E13-1. Capacity for the scrap zinc melting furnace shall not exceed 6,000 pounds per hour. The Technical Secretary may require the permittee to demonstrate the status of compliance.

Permit 032607P, Condition 1

Comments:
For information only. The facility is not required to keep a log in this format.

E13-2. Particulate matter emitted from the Scrap Zinc Electric Furnace and Alloy Furnace Baghouse (stack 09870-00-ST) shall not exceed 0.005 grains per dry standard cubic foot of exhaust gas (0.75 lb/hr).

40 CFR 63.11162(b)(6)

Compliance Method: This source (63-0092-20) shall not be operated without the use of air pollution control device(s) (fabric filters), except in accordance with TAPCR 1200-03-20. Compliance with this condition shall be assured by operating the fabric filters at or higher than the minimum pressure drops corresponding to the exhaust emissions of 0.75 pounds per hour and the daily recording of the pressure drop across the fabric filters in the Scrap Zinc electric Furnace and Alloy Furnace Baghouse. A monthly log of maintenance shall indicate what maintenance and repair was done, when it was done, by whom, and when problems were rectified, showing time and date. This information shall include, but is not limited to, filter inspections, filter replacement, and time of use of the emergency/standby venting from fabric filters. A log of the operation hours when this line is operating without the baghouse system fully operating must be kept.

Compliance with this requirement shall be assured by maintaining a minimum pressure drop of 2.0 inches of water column across the fabric filters in the Scrap Zinc Electric Furnace and Alloy Furnace Baghouse. The pressure drop shall be recorded once daily when this source is in operation. The days when the source does not operate shall be noted. In the event that all bags are replaced simultaneously, the permittee will record in a separate log, the date complete replacement is made and record daily pressure drop across that particular baghouse until the minimum pressure drop for the baghouse is reached. Once reached, the standard recordings shall be made and a report of the time required to reach the minimum pressure drop shall be calculated. This report shall be included with that current semiannual period submittal. All logs shall be recorded in a suitable permanent form and kept available for inspection and be used to certify compliance with this condition and in the reporting requirements of E2 of this permit, and must be retained for a period of not less than five years. The information obtained from the study shall be incorporated into this permit by administrative permit amendment to set operating parameters while the filter cake is accumulating on the new bag filter. Reports and certifications shall be submitted in accordance with Condition E2 of this permit.

Comments:
Particulate matter emissions records are not required. The required maintenance records were available for review for the time period of November 29, 2017, to October 18, 2018. The inspector performed a spot check due to volume for the period of July 1, 2018, to August 30, 2018. These records were considered complete.

Pressure drop records were available for review. The inspector performed a <u>full</u> review of the records for the time period of November 29, 2017, to October 18, 2018. These records were considered complete.

Pressure drop readings taken at the time of inspection were as follows:

Baghouse:	Pressure Drop "H2O:
09870-00-ST Scrap Zinc Electric Furnace and Alloy Furnace with Baghouse	**4.5**

E13-3. Visible emissions from this source (63-0092-20) shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count).

TAPCR 1200-03-05-.01

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

<u>Comments:</u>
This source was operating at the time of inspection and no visible emissions were observed.

63-0092-24 Source Identification No. 2 Fuel Oil Fired Secondary Acid Plant Preheater: Input Rate: 38 MM Btu per hour

Condition E14-1thru E14-9 apply to source 63-0092-24

E14-1. The maximum heat input rate for this source shall not exceed 38 million BTU per hour (MMBTU/hr).

Permit 946934F, Condition 2

<u>Comments:</u>
For information only. According to the facility contact, heat input rate for this source has not changed.

E14-2. Particulate matter (TSP) emitted from this source shall not exceed 0.3 pounds per million BTU (11.4 pounds per hour).

TAPCR 1200-03-06-.01(7) and the letter dated March 21, 2007 from the permittee

Compliance Method: Compliance is assured based on:

- The maximum heat input rate of 38 MMBtu/hr (**Condition E14-1**),
- The use of No. 2 fuel oil (**Condition E14-9**),
- The No. 2 fuel oil heating value of 140,000 Btu per gallon (Btu/gal), contained in the Fifth Edition of AP 42 "Compilation of Air Pollutant Emission Factors Volume I: Stationary Point and Area Sources," Appendix A, Miscellaneous Data And Conversion Factors,
- The particulate matter emission factors of 2 pounds of filterable particulate matter per 1,000 gallons of fuel oil combusted, and 1.3 pounds of condensable

particulate matter per 1,000 gallons of fuel oil combusted, contained in AP-42, Sec. 1.3 (dated 5/10), Tables 1.3-1 and 1.3-2.

Comments:
Emissions records are not required. The heat input rate at Condition E14-1 has not changed and only ultra-low sulfur diesel fuel is combusted by this source.

E14-3. Sulfur Dioxide (SO_2) emitted from this source shall not exceed 19.2 pounds per hour.

TAPCR 1200-03-14-.01(3) and the letter dated March 21, 2007 from the permittee

Compliance Method: Compliance is assured based on:
- The maximum heat input rate of 38 MMBtu/hr (**Condition E14-1**),
- The use of No. 2 fuel oil (**Condition E14-9**),
- The No. 2 fuel oil heating value of 140,000 Btu per gallon (Btu/gal), contained in the Fifth Edition of AP 42 "Compilation of Air Pollutant Emission Factors Volume I: Stationary Point and Area Sources," Appendix A, Miscellaneous Data And Conversion Factors,
- The maximum fuel oil sulfur content of 0.5 percent (**Condition E14-8**),
- The SO_2 emission factor of 142S pounds of SO_2 per 1,000 gallons of fuel oil combusted (where S is the fuel sulfur content in percent), contained in AP-42, Sec. 1.3 (dated 5/10), Table 1.3-1.

Comments:
Emissions records are not required. The heat input rate at Condition E14-1 has not changed and only ultra-low sulfur diesel fuel is combusted by this source.

E14-4. Carbon monoxide (CO) emitted from this source shall not exceed 4.2 pounds per hour.

TAPCR 1200-03-06-.01(7) and the letter dated March 21, 2007 from the permittee

Compliance Method: Compliance is assured based on:
- The maximum heat input rate of 38 MMBtu/hr (**Condition E14-1**),
- The use of No. 2 fuel oil (**Condition E14-9**),
- The No. 2 fuel oil heating value of 140,000 Btu per gallon (Btu/gal), contained in the Fifth Edition of AP 42 "Compilation of Air Pollutant Emission Factors Volume I: Stationary Point and Area Sources," Appendix A, Miscellaneous Data And Conversion Factors,
- The vendor-supplied CO emission factor of 5 pounds of CO per 1,000 gallons of fuel oil combusted.

Comments:
Emissions records are not required. The heat input rate at Condition E14-1 has not changed and only ultra-low sulfur diesel fuel is combusted by this source.

E14-5. Nitrogen dioxides (NO_X) emitted from this source shall not exceed 7.4 pounds per hour.

TAPCR 1200-03-06-.01(7) and the letter dated March 21, 2007 from the permittee

Compliance Method: Compliance is assured based on:
- The maximum heat input rate of 38 MMBtu/hr (**Condition E14-1**),
- The use of No. 2 fuel oil (**Condition E14-9**),
- The No. 2 fuel oil heating value of 140,000 Btu per gallon (Btu/gal), contained in the Fifth Edition of AP 42 "Compilation of Air Pollutant Emission Factors Volume I: Stationary Point and Area Sources," Appendix A, Miscellaneous Data And Conversion Factors,
- The vendor-supplied NO_X emission factor of 24 pounds of NO_X per 1,000 gallons of fuel oil combusted.

Comments:

Emissions records are not required. The heat input rate at Condition E14-1 has not changed and only ultra-low sulfur diesel fuel is combusted by this source.

E14-6. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for one (1) six-minute period in any one (1) hour period and for no more than four (4) six-minute periods in any twenty-four (24) hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average).

TAPCR 1200-03-05-.01(1) and 1200-03-05-.03(6)

Compliance Method: Compliance with this opacity limitation shall be certified through utilization of the Division's Opacity Matrix dated June 18, 1996 and amended September 11, 2013, using EPA Method 9.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

Comments:
This source was operating at the time of inspection and no visible emissions were observed.

E14-7. Operating time for this source shall not exceed 1000 hours during any period of 12 consecutive months.

Letter dated March 21, 2007, from the permittee.

Compliance Method: Logs of the operating hours, in a form that readily show compliance with this condition, must be maintained at the source location and kept available for inspection by the Technical Secretary of his representative. These logs must be maintained for a period of not less than five years.

Monthly operating time log for Source 63-0092-24					
Month and Year:					
Day	**Daily Hours of Operation (hours/day)**	**Day**	**Daily Hours of Operation (hours/day)**	**Day**	**Daily Hours of Operation (hours/day)**
1		11		21	
2		12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	
				31	
			TOTAL FOR MONTH:		

12-consecutive months operating time log for Source 63-0092-24		
Month and Year	**Hours of Operation (hours/month)**	**Hours of Operation (hours/12-consecutive months)**

* The hours per 12-consecutive months value is the sum of the operating hours in the 11 months preceding the month just completed + the operating hours in the month just completed. If data is not available for the 11 months preceding the initial use of this Table, this value will be equal to the value for operating hours per month. For the second month it will be the sum of the first month and the second month. Indicate in parentheses the number of months summed [i.e., 6 (2) represents 6 operating hours in 2 months].

Comments:
The inspector performed a full review of the required records for the time period of November 29, 2017, to October 18, 2018. These records were considered complete. The maximum hours of operation for the inspection period occurred during the 12 month period ending in May 2018 with 810 hours of operation.

E14-8. The sulfur content of the fuel oil shall not exceed 0.5 percent by weight.

Permit 946934F, Condition 9 and 11

Compliance Method: A log of the shipment receipts from the fuel supplier for each shipment of No.2 oil delivered, in a form that readily shows compliance with Condition E14-8, must be maintained at the source location and kept available for inspection by the Technical Secretary or his representative. This log must be retained for a period of not less than five years. Alternatively, the vendor may supply a statement certifying that all fuel oil shipment to this source will comply with the maximum 0.5% sulfur by weight limit.

Comments:
The required records were available for the time period of November 29, 2017, to October 18, 2018. The inspector performed a spot check due to volume. Facility records indicated that only ultra-low sulfur (ULS) diesel fuel is combusted by this source. Specifically, an invoice from Hollingsworth Oil dated September 27, 2018, indicated that only ULS fuel is delivered to the facility.

E14-9. Only No 2 fuel oil shall be used as fuel for this source.

Permit 946934F, Condition 10

Comments:
According to the facility contact, only No. 2 fuel oil is combusted by this source.

63-0092-25 **Source Identification** Lead Anode Pre-Coating Operation

Stack ID	Process Description	Height above grade (ft)	Inside Diameter at Outlet (ft)	Exhaust flowrate at dry standard condition (dscfm)
13050-00-ST	Lead Anode is pre-coated in spent electrolyte. Exhaust through a ventilation hood	60	0.83	2519

Condition E15-1 thru E15-2 apply to source 63-0092-25

E15-1. The maximum production rate shall not exceed 49 lead anodes per batch using electrolyte bath tank.

Comments:
This source has not operated since 2008.

E15-2. Chlorine (Cl_2) emitted from this source shall not exceed 0.5 pounds per hour and 2.2 tons during any consecutive twelve month period.
TAPCR 1200-03-07-.07(2)

Compliance Method: Record keeping for anodes being pre-coated per batch as well as the time per batch along with other chemical usage (type and frequency of make-up replenishment) logs shall be maintained.

Based on company calculations, taking into consideration the inherent design criteria and capacity of this process, the emission rate of chlorine will not exceed 0.5 lbs/hr when the number of lead anodes coated does not exceed 49 pieces per batch. A log of the number of anodes per batch being processed and the time per batch must be maintained at the source location and kept available for inspection by the Technical Secretary or his representative. These logs must be retained for a period of not less than five years.

Comments:
This source has not operated since 2008.

63-0092-55: Minor Modification #2	Five (5) Emergency IC Engines each with a Generator: Rating ranges from 76 Hp to 680 Hp; Four-stroke CI Diesel Engines. Subject to: 40 CFR Part 63 Subpart ZZZZ

Condition E16-1(MM2) thru E16-12 (MM2) apply to source 63-0092-55

E16-1.(MM2) The design rated horsepower for these existing emergency CI diesel engines and their construction/ installation dates are provided below in a tabular format. These emergency IC engines are subject to the requirements of NESHAP (National Emission Standards for Hazardous Air Pollutants) – 40 CFR Part 63 Subpart ZZZZ, for Stationary Reciprocating Internal Combustion Engines (RICE). The permittee shall comply with all Federal and State regulations including but not limited to, the Regulations as outlined above.

Engine Manufacturer	Model No	Horsepower Hp	Year of Installation
Caterpillar	SR4/3412	680	1984
Caterpillar	SR4/3306	227	1994
Caterpillar	SR4/3306	227	1994
Cummins	4BT3.9G/GC-2	76	1994
Cummins	VT504-F2	157	1978

Comments:
For information only. According to the facility contact, the design capacity of these engines has not changed.

E16-2.(MM2) The permittee must operate the emergency stationary RICE according to the requirements in 40 CFR §63.6640 (f) paragraphs (f)(1) through (4), including the following requirements:

In order for the engine to be considered an emergency stationary RICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (4) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (4) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary RICE in emergency situations.

(2) You may operate your emergency stationary RICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraphs (f)(3) and (4) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).

The tons per year emission values are based on an operating time of 500 hours per year as agreed limit for fee purposes.

Comments:

Total operating hours in 2017:
Acid Plant: 8.8
Water Plant: 5.3
Cast House: 15.0
Metal Recovery: 17.8
Raw Water Pump: 50.0

Total operating hours thus far in 2018:
Acid Plant:7.1
Water Plant: 0.3
Cast House:16.8
Metal Recovery: 26.8
Raw Water Pump: 1.0

E16-3.(MM2) Particulate matter (TSP) emitted from this source shall not exceed 3.01 pounds per hour (lbs/hr) and 0.75 tons per year (TPY) for all four diesel engines based on 500 hrs/yr operation. This emission limitation is established pursuant to TAPCR 1200-03-06-.02 and company's approved minor modification application dated April 9, 2015.

Comments:
For information only. Emissions records are not required.

E16-4.(MM2) Carbon Monoxide (CO) emitted from this source shall not exceed 9.13 lb/hr and 2.28 TPY for all four diesel fired engines serve the generators, based on 500 hrs/yr operation. This emission limitation is established pursuant to TAPCR 1200-03-07-.07 and company's approved minor modification application dated April 9, 2015.

Comments:
For information only. Emissions records are not required.

E16-5.(MM2) NO_X emitted from this source shall not exceed 42.38 lbs/hr and 10.6 TPY for all four diesel engines serving the generators based on 500 hrs/yr operation. This emission limitation is established pursuant to TAPCR 1200-03-07-.07 and company's approved minor modification application dated April 9, 2015.

Comments:
For information only. Emissions records are not required.

E16-6.(MM2) SO_2 emitted from this source shall not exceed 2.8 lbs/hr and 0.7 TPY for all four diesel engines serving the generators based on 500 hrs/yr operation. This emission limitation is established pursuant to TAPCR 1200-03-14-.03(5) and company's approved minor modification application dated April 9, 2015.

Comments:
For information only. Emissions records are not required.

E16-7.(MM2) Volatile Organic Compounds (VOC) emitted from this source shall not exceed 3.38 lbs/hr and 0.84 TPY for all four engines, based on 500 hrs/yr operation. This emission limitation is established pursuant to TAPCR 1200-03-07-.07 and company's approved minor modification application dated April 9, 2015.

Comments:
For information only. Emissions records are not required.

E16-8.(MM2) Allowable emission rates in conditions E16-3(MM2) through E16-7(MM2) have been provided by the company based on AP-42, Table 3.3-1 for uncontrolled Diesel Industrial Engines and 500 hours of operation (for fee purposes only).

Comments:
For information only. Emissions records are not required.

E16-9.(MM2) Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for one (1) six-minute period in any one (1) hour period and for no more than four (4) six-minute periods in any twenty-four (24) hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average). TAPCR 1200-03-05-.03(6) and TAPCR 1200-03-05-.01(1)

Compliance Method: Compliance with the opacity standard shall be assured by the procedures of the Division opacity matrix dated June 18, 1996 and amended September 11, 2013. If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

Comments:
The engines were not operating at the time of inspection. However, this source is only a minor component of the facility and has had no history of visible emissions problems.

E16-10.(MM2) Pursuant to *40 CFR §63.6603 (Subpart ZZZZ, Table 2d)* the permittee shall comply with the following requirements:

(a) Change oil and filter every 500 hours of operation or annually, whichever comes first;
(b) Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first; and
(c) Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

All records shall be maintained at the source location and kept available for inspection by the Technical Secretary or his representative. These records must be retained for a period of not less than five (5) years.

Comments:
The inspector performed a <u>full</u> review of the required records for the time period of November 29, 2017, to October 18, 2018. These records indicated that the required maintenance was performed on the following dates:

Acid Plant: August 22, 2018
Water Plant: August 22, 2018
Cast House: August 22, 2018
Metal Recovery: August 22, 2018
Raw Water Pump: August 22, 2018

E16-11.(MM2) For each engine, the permittee shall keep a log of the number of operating hours for each month and each twelve (12) consecutive month interval at this source, in a form that readily provides the information required in the following table and shows compliance with Condition 16-2 and for the purpose of calculating actual emissions for fee purposes. All data must be entered in the log no later than thirty (30) days from the end of the month for which the data is required. The permittee shall retain this record at the source location for a period of not less than five (5) years and keep this record available for inspection by the Technical Secretary or his representative. TAPCR 1200-03-10-.02(2)(a)

MONTHLY/YEARLY LOG: Source 63-0092-55

Year:	

Month	*Hours Per Month*		*Hours Per 12 Consecutive Months*		*Month*	*Hours Per Month*		*Hours Per 12 Consecutive Months*	
	Emergency operation	*Non-emergency operation*	*Emergency operation*	*Non-emergency operation*		*Emergency operation*	*Non-emergency operation*	*Emergency operation*	*Non-emergency operation*
January					*July*				
February					*August*				
March					*September*				
April					*October*				
May					*November*				
June					*December*				

*The "Hours per 12 Consecutive Mont*hs" values are the sum of the hours in the 11 months preceding the month just completed plus the hours in the month just completed.

Comments:
The inspector performed a full review of the required records for the time period of November 29, 2017, to October 18, 2018. These records were considered complete and indicated that the hours of operation limit specified at E16-2.(MM2) was not exceeded.

E16-12.(MM2) This permit for the IC engine generators is valid only at this location.

Comments:
For information only.

63-0092-56: Minor Modification #2	One (1) Emergency IC Engines with Generator: Four-stroke CI Diesel Engines, 227 BHP with 180 Kw Generator. Subject to: NSPS, 40 CFR Part 60 Subpart IIII and NESHAPs, 40 CFR Part 63 Subpart ZZZZ

Condition E17-1(MM2) thru E17-15(MM2) apply to source 63-0092-56

E17-1(MM2). The rated horsepower and manufacturing date for the emergency CI diesel engine serving the generator is provided below in a tabular format. This emergency diesel IC engine is subject to the requirements of NSPS (standards of Performance for New Stationary sources) - 40 CFR Part 60 Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines and NESHAP (National Emission Standards for Hazardous'Air Pollutants) – 40 CFR Part 63 Subpart ZZZZ, for Stationary Reciprocating Internal Combustion Engines (RICE). The permittee shall comply with all Federal and State regulations including but not limited to, the Regulations as outlined above.

Engine Manufacturer	Engine Model No	Engine Horsepower Hp	Year of Manufacture	Generator output, kw
Kohler	180RE0ZJE	227	August, 2011	180

Comments:
For information only.

E17-2(MM2). The stated design power output capacity for the internal combustion engine is 227 horsepower (hp). Any increase in this capacity will require a construction permit.

TAPCR 1200-03-09- .03(8) .01(1)(d) and the application dated April 9, 2015

Comments:
For information only. According to the facility contact, the design capacity of the engine has not changed.

E17-3(MM2). On the permit application, the permittee stated that this generator is used for emergency purposes. Therefore, based on EPA policy, the allowable emissions were calculated using 500 hours per year. This condition is for fee and informational purposes only and is not a limitation. Pursuant to TAPCR 1200-03-26-.02(6)(b)

Comments:
For information only.

E17-4(MM2). Particulate matter (TSP) emitted from the IC emergency diesel engine shall not exceed 0.2g/kW-hr (0.08 pounds/hour (lb/hr)). Compliance with this limit shall be indicated by compliance with Condition E17-9. This emission limitation is established pursuant to 40 CFR 60 Subpart IIII, (§60.4205 (b) and §60.4202(a)(2)).

Comments:
For information only. Emissions records are not required. According to the facility contact, the facility is following the requirements of Condition E17-9.

E17-5(MM2). Carbon Monoxide (CO) emitted from these four engines serving the generators shall not exceed 3.5 g/kW-hr (1.4 lbs/hr). Compliance with this limit shall be indicated by compliance with Condition E17-9. This emission limitation is established pursuant to 40 CFR 60 Subpart IIII, (§60.4205 (b) and §60.4202(a)(2)).

Comments:
For information only. Emissions records are not required. According to the facility contact, the facility is following the requirements of Condition E17-9.

E17-6(MM2). NMHC + NO_X emitted from these four engines serving the generators shall not exceed 4.0 g/kW-hr (1.6 lbs/hr). Compliance with this limit shall be indicated by compliance with Condition E17-9. This emission limitation is established pursuant to 40 CFR 60 Subpart IIII, (§60.4205 (b) and §60.4202(a)(2)).

Comments:
For information only. Emissions records are not required. According to the facility contact, the facility is following the requirements of Condition E17-9.

E17-7(MM2). The permittee shall use diesel fuel that meets the requirements of §60.4207 (b) and §80.510(c), as follows per gallon standards :

(1) Sulfur content shall not exceed 15 ppm maximum for nonroad diesel fuel.
(2) Cetane index or aromatic content, as follows:
  (i) A minimum cetane index of 40; or
  (ii) A maximum aromatic content of 35 volume percent.

Comments:
An invoice dated September 27, 2018, from Hollingsworth Oil Company, indicates that Nyrstar only uses non-road ultra-low sulfur diesel fuel.

E17-8(MM2). Pursuant to §60.4206, owners and operators of emergency stationary CI RICE and control device (if present) must operate and maintain the emission standards (in conditions E17-4,E17-5, E-17-6) that achieve the emission standards as required in 40 CFR §60.4205 over the entire life of the engine.

Comments:
For information only.

E17-9(MM2). Pursuant to 40 CFR §60.4211(a) and (c), the permittee must comply by purchasing an engine certified to the emission standards in § 60.4205(b) (Conditions E17-4, E17-5, E-17-6) for the same model year and maximum engine power. The permittee must do all of the following:

(a) Install and configure the engine according to the manufacturer's emission-related specifications;
(b) Operate and maintain the emergency stationary RICE and control device (if present) according to the manufacturer's emission-related written instructions;

(c) Change only those emission-related settings that are permitted by the manufacturer; and
(d) Meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply.

Comments:
According to the facility contact, the engine is installed, operated, and maintained according to manufacturer specifications.

E17-10(MM2). Pursuant to 40 CFR §60.4211(f), the permittee must operate the emergency stationary ICE according to the requirements in paragraphs (1) through (3) of this condition. In order for the engine to be considered an emergency stationary ICE under 40 CFR 60, subpart IIII, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (1) through (3) of this condition, is prohibited. If the permittee does not operate the engine according to the requirements in paragraphs (1) through (3) of this condition, the engine will
not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary ICE in emergency situations.
(2) The permittee may operate your emergency stationary ICE for any combination of the purposes specified in paragraphs (2)(i) through (iii) of this condition for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (3) of this condition counts as part of the 100 hours per calendar year allowed by this paragraph (2).
    (i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Technical Secretary for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.
    (ii) Emergency stationary ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see § 60.17), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.
    (iii) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.
(3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (2) of this condition. Except as provided in paragraph (3)(i) of this condition, the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.
    (i) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:
        (A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator;
        (B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
        (C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
        (D) The power is provided only to the facility itself or to support the local transmission and distribution system.
        (E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

Comments:
Total Hours of Operation 2017: 6.7

Total Hours of Operation thus far 2018: 6.9

E17-11(MM2). The permittee must keep monthly records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The permittee must document how many hours are spent for the following categories: (a) emergency operation, as specified in Condition E17-10, Paragraph (1), including what classified the operation as emergency; (b) maintenance checks and readiness testing, demand response, as specified in Condition E17-10, Paragraph (2); and (c) non-emergency operation, as specified in Condition E17-10, Paragraph (3). The permittee shall calculate the operating hours during all intervals of twelve consecutive months. The permittee shall maintain the following log format or an alternative format which readily provides the same required information and retain this record at the source location for a period of not less than five (5) years and available for inspection by the Technical Secretary or his representative.

Logs for emergency stationary ICE: Source 63-0092-56

Month, Year	Emergency Operation (hr/mon)	Emergency Operation (hr/12 consecutive months)	Maintenance Checks and Readiness Testing (hr/mon)	Maintenance Checks and Readiness Testing (hr/12 consecutive months)	Non-Emergency Operation (hr/mon)	Non-Emergency Operation (hr/12 consecutive month)
		Column A		Column B		Column C
January						
February						
Etc.						
December						

	Add Columns B+C	Add Column C
Limit	100 hours	50 Hours
January		
February		
Etc.		
December		

Comments:
The inspector performed a <u>full</u> review of the required logs for the time period of November 29, 2017, to October 18, 2018. These records were considered complete and indicated that the hours of operation limit specified at Condition E17-10(MM2) has not been exceeded during the inspection period.

E17-12(MM2). The Emergency Diesel Engine serving the Generator is subject to regulations under 40 CFR Part 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) as follows:

a) The permittee shall meet the requirements of 40 CFR Part 63, Subpart ZZZZ, by meeting the requirements of 40 CFR Part 60, Subpart IIII (NSPS). No further requirements apply for this engine under 40 CFR Part 63, Subpart ZZZZ.

Comments:
For information only.

E17-13(MM2). This permit for the IC engines serving generators is valid only at this location.

Comments:
For information only.

E17-14(MM2). Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for one (1) six-minute period in any one (1) hour period and for no more than four (4) six-minute periods in any twenty-four (24) hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average).

TAPCR 1200-03-05-.03(6) and TAPCR 1200-03-05-.01(1)

Comments:
The engines were not operating at the time of inspection. However, this source is only a minor component of the facility and has had no history of visible emissions problems.

E17-15 (MM2). This source shall comply with all applicable state and federal air pollution regulations. This includes, but is not limited to, federal regulations published under 40 CFR 63 for sources of hazardous air pollutants and 40 CFR 60, New Source Performance Standards. TAPCR 1200-03-09-.03(8)

Comments:
For information only.

END OF PERMIT NUMBER 560146

Permit Status:

Permit Number	Source Number(s)	Issue/Amendment/Modification Date	Expiration Date	Next Application Due Date	Next Application Received Date
972072P	-12	Issued: 10/27/16 Amendment #1: 02/07/17 Amendment #2: 03/31/17	05/01/17	11/09/17	08/10/17

Comments: This construction permit is for a replacement rental boiler installed on November 9, 2016. The start-up certification was due within 30 days after start-up. A start-up certification dated November 18, 2016, certified the start-up as November 9, 2016.

Amendment #1 modified/revised condition E11-16; added condition E11-17, and extended the expiration date to May 1, 2017. Additionally, condition E11-16 of Amendment #1 states that a Significant Modification application must be submitted within 360 days of the start-up certification date of the boiler. A Significant Modification application was submitted on 08/10/17. This application was combined with pending TV Renewal Permit Number 572963.

Amendment #2 modified/revised condition E11-2 by repositioning the operating time log table.

CONDITIONS:

1. The application that was utilized in the preparation of this permit is dated August 29, 2016, and signed by Stephen James, Plant Manager for the permitted facility. If this person terminates his/her employment or is reassigned different duties such that he/she is no longer the responsible person to represent and bind the facility in environmental permitting affairs, the owner or operator of this air contaminant source shall notify the Technical Secretary of the change. Said notification shall be in writing and submitted within thirty (30) days of the change. The notification shall include the name and title of the new person assigned by the source owner or operator to represent and bind the facility in environmental permitting affairs. All representations, agreement to terms and conditions and covenants made by the former responsible person that were used in the establishment of limiting permit conditions on this permit will continue to be binding on the facility until such time that a revision to this permit is obtained that would change said representations, agreements and covenants.

Comments:

Kevin Cook, SHEQ Manager, is the new Responsible Official. Mr. Cook became the new Responsible Person effective June 11, 2018. Written notification of this change was submitted to the Division on the same date.

63-0092-12	Auxiliary Boiler (65 MMBtu/hr) and Roaster Preheater (35 MMBtu/hr); (100 MM Btu per hour Total), No. 2 Fuel Oil Fired. The roaster preheater will not operate while the acid plant in 63-0092-03 is operating. The Boiler is Subject to 40 CFR Part 63 Subpart JJJJJJ Modification: Existing auxiliary boiler (45 MMBtu/hr) is being replaced by a temporary rental boiler (65 MM Btu/hour). Subject to 40 CFR Part 63 Subpart JJJJJJ & 40 CFR Part 60 Subpart Dc

E11-1. Visible emissions from this source (except new auxiliary boiler) shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count).

TAPCR 1200-03-05-.01

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended September 11, 2013 (enclosed as Attachment in Title V permit)

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

Comments:
This source was operating at the time of inspection and no visible emissions were observed.

E11-2. Operating time for Auxiliary Boiler and Roaster Preheater shall not exceed the limit set in the following table:

Agreement letter dated October 11, 2001; Significant Modification application dated December 14, 2006, and construction permit application dated August 29, 2016.

Compliance Method: A log of the operating hours, in a form that readily shows compliance with this condition, must be maintained at the source location and kept available for inspection by the Technical Secretary or his representative. This log must be maintained for a period of not less than five years. All data must be entered in the log no later than 7 days from the end of the day for which the data is required.

Daily Operating Time log, Source 63-0092-12

Equipment	**Auxiliary Boiler**		**Roaster Preheater**	
Limit	**895 hours***		**480 hours***	
Date	**Daily Hours of Operation (hours/day)**	**Cumulative Total Hours of Operation (hours)**	**Daily Hours of Operation (hours/day)**	**Cumulative Total Hours of Operation (hours)**

***** during all intervals of 12 consecutive months

Comments:

The inspector performed a full review of the required records for the time period of November 29, 2017, to October 18, 2018. Additionally, the logs for the entire month of October 2018 were received via email on November 5, 2018. Exceedances of the hours of operation limits were noted as detailed below:

***Auxiliary Rental Boiler Exceedances (Max 12 consecutive month total hours of operation):**
1,031 May 2018, 1,060 June 2018, 1,013 July 2018, 1,050 August 2018, 1,530 September 2018, 1,628 October 2018

Roaster Preheater Exceedances(12 consecutive month total hours of operation):
480.5 April 2018, 540.5 May 2018, 529.5 June 2018, 529.5 July 2018, 564.3 August 2018, 586.8 September 2018, 643.3 October 2018

The exceedances occurring prior to July 2018 were reported in the SAR received on August 29, 2018. The Division responded with a NOV dated September 7, 2018, and consequent Order #APC18-0184 was issued on November 6, 2018. A construction permit application for an increase in the allowable hours was received on August 14, 2018. Therefore, the NOV required no further action. The exceedances occurring after June 2018 were noted during this inspection and by additional information received via email on November 5, 2018. An additional NOV was issued on November 14, 2018, at the request of Enforcement. The additional exceedances will be addressed by a separate order.

E11-3. Only No. 2 oil, with maximum sulfur content of 0.5 % by weight, shall be used for this source. NSPS; 40 CFR Part 60, Subpart Dc (§60.47c (f)(3))

Comments:
An invoice from Hollingsworth Oil Company, dated September 27, 2018, indicated that only non-road ultra-low sulfur diesel fuel is delivered to the facility.

E11-4. Particulate matter emitted from this source shall not exceed the following:

Source	Heat Input Value (MMBtu/hr)	PM limitation(lb/MMBtu)	lb/hr
Auxiliary Boiler (Replacement)	65	.21	13.65
Roaster Preheater	35	0.30	10.5

TAPCR 1200-03-06-.02(2)(a)

Compliance Method: Compliance with this condition will be achieved through compliance with Condition E11-3. By annual certification of compliance, the permittee shall be considered to meet the monitoring and related recordkeeping and reporting requirements of TAPCR 1200-03-09-.02(11) (e)1.(iii) and 1200- 03-10-.04(2)(b)1 and the compliance requirements of TAPCR 1200-03-09-.02(11)(e)3.(i). The permittee shall submit compliance certification for this source annually.

Comments:
Particulate matter emissions records are not required. This source only combusts ultra-low sulfur diesel fuel. The facility certified compliance with this condition in its latest ACC.

E11-5. Sulfur dioxide emitted from this source shall not exceed 5.0 pounds per MMBtu and 19.1 tons/year.
TAPCR 1200-03-14-.02(2)(a)

Compliance Method: Compliance with this condition will be achieved through compliance with Condition E11-3. By annual certification of compliance, the permittee shall be considered to meet the monitoring and related recordkeeping and reporting requirements of TAPCR 1200-03-09-.02(11) (e)1.(iii) and 1200-03-10-.04(2)(b)1 and the compliance requirements of TAPCR 1200-03-09-.02(11)(e)3.(i). The permittee shall submit compliance certification for this source annually.

Comments:

Particulate matter emissions records are not required. This source only combusts ultra-low sulfur diesel fuel. The facility certified compliance with this condition in its latest ACC.

E11-6. a) For fee purposes, the maximum actual emissions for NO_x have been determined to be 17.2 pounds per hour and 6.5 tons (5.0 tons from boiler and 1.5 tons from roaster preheater) for all intervals of twelve (12) consecutive months.

b) NOx emissions from 65 MMBtu/hour rental boiler shall not exceed 5.0 tons/year.

TAPCR 1200-03-26-.02(2)(d)3

Comments:
For information only. Emissions records are not required.

E11-7. The maximum actual emissions for Carbon Monoxide (CO) have been determined to be 3.6 pounds per hour and 2.0 tons for all intervals of twelve (12) consecutive months.

TAPCR 1200-03-06-.03(2)

Comments:
For information only. Emissions records are not required.

E11-8. This condition addresses applicability to 40 CFR 63, Subpart JJJJJJ. The facility is considered an area source of HAP emissions. Pursuant to 40 CFR §63.11194(a)(1), the auxiliary boiler is considered to be an existing affected source in the oil subcategory. In order to comply with 40 CFR 63, Subpart JJJJJJ, the boiler must comply with **Conditions E11-9 through E11-13** of this permit.

Comments:
For information only.

E11-9. Pursuant to 40 CFR §63.11201(b), the permittee shall conduct a tune-up of the auxiliary boiler biennially as specified in §63.11223. Each biennial tune-up must be conducted no more than 25 months after the previous tune-up. The tune-up must include:

(a) As applicable, inspect the burners, and clean or replace any components of the burners as necessary (the permittee may delay the burner inspection until the next scheduled unit shutdown, but the permittee must inspect each burner at least once every 36 months).
(b) Inspect the flame pattern, as applicable, and adjust the burners as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available.
(c) Inspect the systems controlling the air-to-fuel ratio, as applicable, and ensure that they are correctly calibrated and functioning properly.
(d) Optimize total emissions of carbon monoxide. This optimization should be consistent with the manufacturer's specifications, if available.
(e) Measure the concentrations in the effluent stream of carbon monoxide in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made).
(f) Maintain onsite and submit, if requested by the Technical Secretary, biennial report containing the information in paragraphs (i) through (iii) of this condition.
    (i) The concentrations of CO in the effluent stream in parts per million, by volume, and oxygen in volume percent, measured before and after the tune-up of the boiler.
    (ii) A description of any corrective actions taken as a part of the tune-up of the boiler.
    (iii) The type and amount of fuel used over the 12 months prior to the biennial tune-up of the boiler.
(g) If the units are not operating on the required date for a tune-up, the tune-up must be conducted within one week of startup.

Comments:

A tune-up was done on the auxiliary boiler on February 24, 2014; therefore, the next tune-up should have been done prior to March 24, 2016. However, the tune-up could not be completed due to the poor condition of the boiler. A NOV was issued during a previous inspection period. As previously mentioned, the old auxiliary boiler was shutdown in November 2016. This condition does not differentiate between the old boiler and the new boiler. Tune-ups on the new boiler were conducted on November 9, 2016, and December 29, 2016. Therefore the next tune-up was due by November 2018. According to Mr. Burrell, Nyrstar plans to conduct the tune-up during the week of October 22, 2018.

E11-10. Pursuant to 40 CFR §63.11201(b), the auxiliary boiler must have a one-time energy assessment performed by a qualified energy assessor. An energy assessment completed on or after January 1, 2008, that meets or is amended to meet the energy assessment requirements in this condition satisfies the energy assessment requirement. The energy assessment must include:

(a) A visual inspection of the boiler system.
(b) An evaluation of operating characteristics of the facility, specifications of energy using systems, operating and maintenance procedures, and unusual operating constraints,
(c) Inventory of major systems consuming energy from affected boiler(s),
(d) A review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage,
(e) A list of major energy conservation measures,
(f) A list of the energy savings potential of the energy conservation measures identified,
(g) A comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments

Comments:
The field work of the assessment was done on October 11, 2013, and the report was dated March 17, 2014. This assessment was done while the auxiliary boiler was still operating. According to Nyrstar, the delivery piping and receiving processes in the plant remained the same after the old boiler was shutdown. The only change with the installation of the rental boiler was the rental boiler itself.

E11-11. Pursuant to 40 CFR §63.11205, at all times the permittee must operate and maintain the auxiliary boiler, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the permittee to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Technical Secretary that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

Comments:
For information only. According to the facility contact, the rental boiler is operated and maintained according to manufacturer's specifications.

E11-12. Pursuant to 40 CFR §63.11225(a)(4) and §63.9(h), the permittee must submit a Notification of Compliance Status to the Technical Secretary for the auxiliary boiler no later than 120 days after the applicable compliance date specified in **Conditions E11-9 and E11-10**. In addition to the information required in 40 CFR §63.9(h)(2), the notification must include the following certification(s) of compliance, as applicable, and signed by a responsible official:

(i) "This facility complies with the requirements in 40 CFR §63.11214 to conduct an initial tune-up of the boiler."
(ii) "This facility has had an energy assessment performed according to 40 CFR §63.11214(c)."

Comments:
A notification of compliance status was submitted on June 11, 2012.

E11-13. Pursuant to 40 CFR §63.11225(c), the permittee must maintain the records specified in paragraphs(a) through (d) of this condition for the auxiliary boiler.

(a) As required in 40 CFR §63.10(b)(2)(xiv), the permittee must keep a copy of each notification and report that was submitted to comply with 40 CFR 63, subpart JJJJJJ and all documentation supporting any Initial Notification or Notification of Compliance Status that was submitted.

(b) The permittee must keep records to document conformance with the work practices, emission reduction measures, and management practices required by 40 CFR §63.11214 as specified in paragraphs (i) and (ii) of this condition.

(i) Records must identify each boiler, the date of tune-up, the procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned.

(ii) Records documenting the fuel type(s) used monthly by each boiler, including, but not limited to, a description of the fuel, including whether the fuel has received a non-waste determination by you or EPA, and the total fuel usage amount with units of measure. If the permittee combusts non-hazardous secondary materials that have been determined not to be solid waste pursuant to 40 CFR §241.3(b)(1), the permittee must keep a record which documents how the secondary material meets each of the legitimacy criteria. If the permittee combusts a fuel that has been processed from a discarded non-hazardous secondary material pursuant to 40 CFR §241.3(b)(2), the permittee must keep records as to how the operations that produced the fuel satisfies the definition of processing in 40 CFR §241.2. If the fuel received a non-waste determination pursuant to the petition process submitted under 40 CFR §241.3(c), the permittee must keep a record that documents how the fuel satisfies the requirements of the petition process.

(c) Records of the occurrence and duration of each malfunction of the boiler, or of the associated air pollution control and monitoring equipment.

(d) Records of actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions in 40 CFRR §63.11205(a), including corrective actions to restore the malfunctioning boiler, air pollution control, or monitoring equipment to its normal or usual manner of operation.

Comments:
Subpart JJJJJJ records were available for review. The inspector performed a spot check of the records. Specifically, the tune-up records for the rental boiler dated November 9, 2016, and December 29, 2016, were examined.

E11-14. Visible emissions from the **replacement boiler** shall not exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average).

40 CFR Part 60, Subpart Dc (§60.43c(c))

Comments:
This source was operating at the time of inspection and no visible emissions were observed.

E11-15. Heat input for this source (boiler and roaster preheater) shall not exceed 65 million Btu per hour (MMBtu/hr) for the boiler and 35 MMBtu/hr for the roaster preheater, respectively.

Comments:
For information only. According to the facility contact, the design heat inputs for the replacement boiler and roaster preheater have not changed.

E11-16. (a) This permit shall serve as a temporary operating permit from the date of issuance to the receipt of a modified Title V major source operating permit for this facility provided the conditions of this permit and any applicable emission standards are met. TAPCR 1200-03-09-.02(2)

(b) The permittee shall apply for a Significant Modification to existing Title V operating permit to the Division within (360) days of the start-up certification date of the boiler, as specified in Condition E11-18 and that the conditions of this permit and the existing Title V permit and any applicable emission standards are met.

Comments:

For information only. A Significant Modification application was submitted on August 10, 2017. This application was combined with pending TV Renewal Permit Number 572963.

E11-17. This replacement boiler is subject to the requirements of 40 CFR Part 60, Subpart Dc—Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. This includes

(a) the opacity limit set forth in condition E11-14 (40 CFR Part 60, Subpart Dc (§60.43c(c)) and the requirement to conduct Method 9 readings as set forth in 40 CFR Part 60, Subpart Dc (§60.47c);

(b) fuel oils that contain no greater than 0.5 weight percent sulfur (condition E11-3) of this permit. 40 CFR Part 60, Subpart Dc (§60.47c (f)(3))

Comments:
For information only.

E11-18. The permittee shall certify the start-up date of the air contaminant source (Auxiliary Replacement Boiler/ Rental Boiler) regulated by this permit by submitting

A COPY OF ALL PAGES OF THIS PERMIT,

with the information required in A) and B) of this condition completed, to the Technical Secretary's representatives listed below:

A) DATE OF START-UP: _____ / ____ / _____
month day year

B) Anticipated operating rate: ____ percent of maximum rated capacity

For the purpose of complying with this condition, "start-up" of the air contaminant source shall be the date of the setting in operation of the source for the production of product for sale or use as raw materials or steam or heat production.

The undersigned represents that he/she has the full authority to represent and bind the permittee in environmental permitting affairs. The undersigned further represents that the above provided information is true to the best of his/her knowledge and belief.

Signature		Date
Signer's name (type or print)	Title	Phone (with area code)

Note: This certification is not an application for an operating permit. At a minimum, the appropriate application form(s) must be submitted requesting an operating permit through a Minor Modification as specified condition E11-16. The application must be submitted in accordance with the requirements of this permit.

The completed certification shall be delivered to the West Tennessee Permit Program at the address listed below, no later than thirty (30) days after the air contaminant source is started-up.

West Tennessee Permit Program
Division of Air Pollution Control
WRS Tennessee Tower
312 Rosa L. Parks Ave, 15th Floor
Nashville, TN 37243

or to Air.Pollution.Control@tn.gov

Comments:
A start-up certification dated November 18, 2016, certified the start-up as November 9, 2016.

(End of Conditions)

Additional General Information:

1) **A copy of the Department's *Mercury-Added Product Disposal Requirements* was given to the facility for review: ____X____YES _____NO**

2) **Was any complaint received? ____X____YES _____NO**
If YES, provide comments:
The U.S. EPA forwarded a complaint to the Division on June 11, 2018. The complaint alleged that Nyrstar's zinc ore roaster was leaking. Division personnel made an unannounced site visit on June 12, 2018. Tyler Burrell, Env Specialist, and Kevin Cook, SHEQ Manager, were present. The roaster was examined and determined to be leaking from the dome. Mr. Cook stated the dome has leaked on and off for 16 months. He went on to say that Nyrstar went inside the dome in 2017 to try to find and repair the leaks. No major openings were found but visible cracks were repaired. Subsequent leaks have been repaired using patches and metal cladding. Nyrstar decided in November 2017 that it was no longer "feasible" to repair the leaks in the top section of the dome externally and planned to repair the leaks internally during an outage in September 2018. A Director's meeting was held on June 14, 2018. The Division decided to issue Nyrstar a NOV for non-compliance with Condition E5-1 of Title V Permit 560146, which requires off-gases from the roaster to be ducted to a control device. The U.S. EPA was notified of the Division's findings on June 14, 2018. The EFO issued a NOV on June 19, 2018. The facility submitted an APC 31 on July 20, 2018. Nyrstar outlined plans in the APC 31 for repairing the roaster dome during an outage in September 2018. Nyrstar submitted a progress report on October 12, 2018. According to this report, Nyrstar spent over $500,000 repairing an area of the roaster approximately 25 ft x 35 ft. However, when the repairs were completed and the roaster began operating again, Nyrstar discovered that the roaster is still leaking off-gases. Nyrstar's solution is to build and install a new stainless steel dome cap that will be fitted over the existing roaster dome. The cost of the dome is estimated at $350,000. Nyrstar originally planned to have the new cap installed by late October or early November 2018. However, Kevin Cook stated during a subsequent telephone conversation with Division personnel on November 5, 2018, that Nyrstar had suffered a set-back in its plans for constructing the cap because of limited availability of the type of stainless steel chosen and, therefore, construction and installation of the new cap will be delayed. The Division will make a subsequent site visit after the cap has been installed to verify that the leaks have been rectified. Nyrstar will remain out of compliance until such time that the roaster leaks have been successfully repaired. This violation, along with previous violations for excess SO2 emissions, was originally addressed by Order Number APC18-0099, which was signed on October 16, 2018. The Order assessed a civil penalty for the amount of $181,482.05. This Order covered the time period of leaking off-gases through August 29, 2018. An additional NOV was issued on November 14, 2018, for leaking off-gases on 32 days that the roaster operated between August 30, 2018, and November 5, 2018. An Order for this additional violation had not been issued at the time of inspection.

An additional complaint was received on October 18, 2018. The complainant stated that a strong odor was coming from the plant and that it was causing a burning sensation in his throat. The Division was on-site on October 18, 2018, for this inspection. The inspector documented off-gases still leaking from the roaster dome. The facility was issued an additional NOV on November 14, 2018, for the continued leaks. Please see the "Violations Description" table for details.

3) **Has open burning occurred at this facility? _____YES ____X___NO**
If YES, provide comments:

4) **Was there any air-related construction/modification? ___X____YES _____NO**
If YES, provide comments:

A construction permit application for an increase in the allowable hours of operation for the Auxiliary Rental Boiler and Roaster Preheater (Source 12) was received on August 14, 2018. Also, the facility is the midst of repairing roaster off-gas leaks as previously described.

5) Is any air-related construction/modification planned? __X___YES _____NO
If YES, provide comments:
A new auxiliary boiler will be installed when funding is provided. The installation of the new boiler is addressed by Construction Permit Number 972072, issued on October 27, 2016, and outlined above. According to Mr. Cook, there is currently no timeframe for installing a new boiler.

6) Are there any unpermitted and/or exempt sources (e.g., generators, stationary engines, boilers) that need further attention? _____YES ____X____NO
If YES, provide comments:

John C. Helton 11/14/18
Name/Date

VEE Certification Number: 2276
Certification Expiration Date: 03/19

I verify that the format and content of this report conforms to established TN Division of Air Pollution Control annual inspection standard operational procedures guidance.

Bill McCabe 11-14-18
Manager/Date